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Number 4.

JANUARY, 1904.

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$3.00 with Directory.

TEXTILE WORLD RECORD

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The Annual Report of New Mill Construction for the Year 1903, Contained in this Number.

The Textile-Finishing Machinery Co.

17 EXCHANGE PLACE, PROVIDENCE, R. I.

Mercerizing Machinery for Piece Goods and Yarn in the warp or chain

Singeing Machines,

Boiling Kiers,

Washers, Squeezers,

Chemic and Sour

Rusden Patent

Continuous Chainless

Steamer,

Aniline Agers,

Dyeing Machines,

Open Soapers,

Blanket Washers,

Color Kettles,

Horizontal or Vertical Drying Machines, with Copper or Tinned Iron Cylinders,

Automatic Tentering Machines,

Water and Starch Mangles,

Dampening Machines,

Dyeing Machines for Chain Warps.

BUILDERS OF ALL KINDS OF

MACHINERY

FOR

BLEACHING

DYEING

DRYING

AND

FINISHING

Calenders for Rolling, Glazing, Chasing and Embossing, also Calenders for Moire Finish.

Patent Combination Rolls made of Cotton and Husk especially adapted for Soft Finish, Unequalled for Elasticity and Durability.

Cotton, Paper, Husk, Chilled Iron, Brass and Rubber Rolls, Electro-deposited Copper Rolls for all Purposes.

Padding and Drying Machines for Shade Cloths.

Single and Double Cylinder Engines.

Hydraulic Presses and Pumps.

ALL KINDS OF OUTFITS FOR BLEACHING THREAD AND SOFT TWISTED YARN.
BLEACHING MACHINERY FOR YARNS IN THE WARP OR CHAIN.

Estimates, drawings and full particulars of complete plants furnished on application

FOR TEXTILE FABRICS

BLEACHING
DYEING
DRYING AND
FINISHING
MACHINERY

Drying Machines with Copper and Tinned Steel Cylinders.

Continuous Steaming Machines (Patented).

Open Soaping Machines.

Color Kettles with Stirrers. Padding Machines.

Oil and Gas Singeing Machines. Long and Short Chain System of Warp Dyeing.

Hydraulic Presses.

Water and Starch Mangles. Washing Machines.

Squeezing Machines.

Sprinkling Machines.

Openers.

CALENDERS Hydraulic, Rolling and Embossing, with Paper, Cotton, Husk and Excelsior Combination Rolls (Patented).

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Tentering Machines for Ginghams, Plaids, Etc. Tentering Machines for Worsted and Woolen Goods. Tentering Machines for Lawns, Etc. and having Patent Vibratory Motion. The above with either pin, spring clamp, or patent automatic clamp chain.

MERCERIZING MACHINES

FOR YARN AND CLOTH.

PATENT WINDING MACHINE

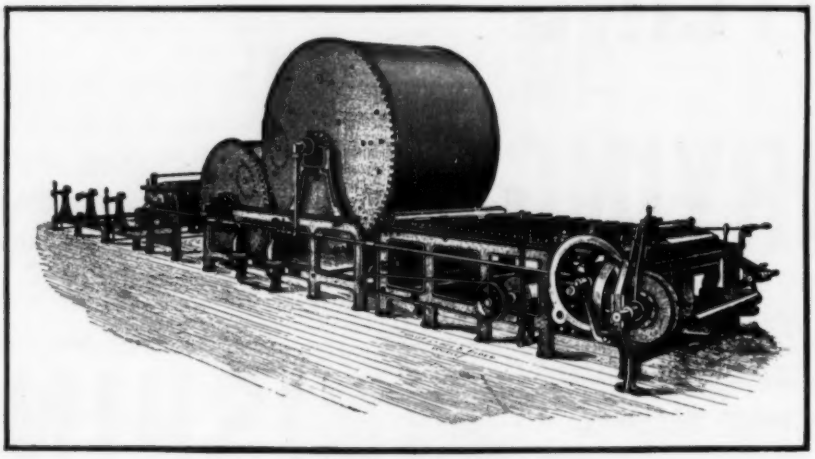
(W. P. Simpson, Patentee).

For use in connection with Singeing Machines, Soaping Machines, Drying Machines, Etc.

H. W. Butterworth & Sons Co. Philadelphia, Pa.

Cotton and Worsted Machinery

OF EVERY DESCRIPTION

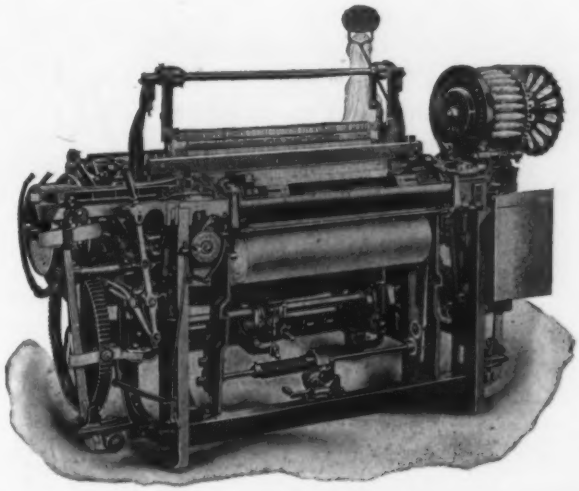


Cylinder Slasher

We are applying many new improvements, Roller Bearings, Improved Friction Head, Extra Carrying Rolls, etc. Less than 3/4-pound power required to start cylinders, Drying surface increased 25 per cent. Magnesia Jacketed Cylinder Heads, Gear Driven Cylinders, etc.

Lowell Machine Shop

LOWELL, MASS.



THE J MODEL LOOM

DESIGNED exclusively for Print Cloths and similar light fabrics. Will weave without a thick or a thin place. Can bang off without shock. Has the large hopper, the Draper-Roper let-off, a new take-up and a new warp stop knock-off.

Large orders now being filled by the

DRAPER COMPANY,

Hopedale, Mass.

OUR LATEST!

AUTOMATIC FILLING STOP MOTION

This attachment will positively stop the loom just before filling runs out, leaving absolutely no mispicks, and it can be attached to any loom.

It can be seen in operation at our works, where we have also on exhibition our

Automatic Shuttle Changing Device.

THE ASALA COMPANY.

OFFICE AND WORKS:

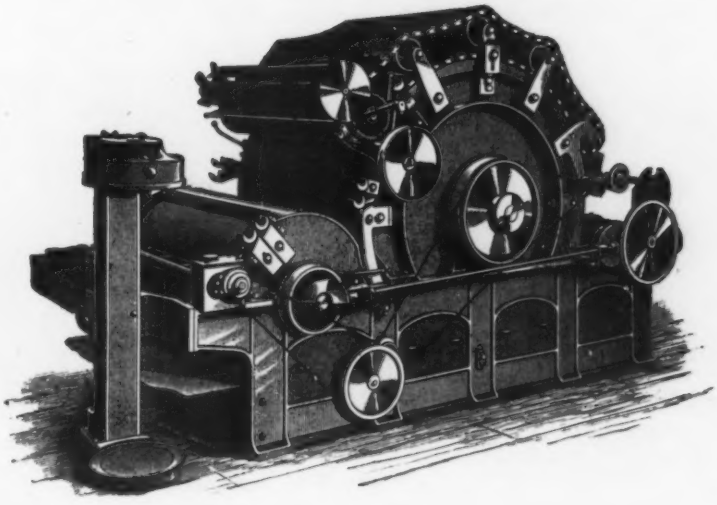
Park Avenue and 129th Street.

Telephone 231 Harlem.

MASON MACHINE WORKS,

TAUNTON, MASS.

Cotton Machinery



Cards, Combers, Railway Heads, Drawing Frames, Spinning Frames, Mules and Looms,

INCLUDING

Plain and Fancy Silk Looms

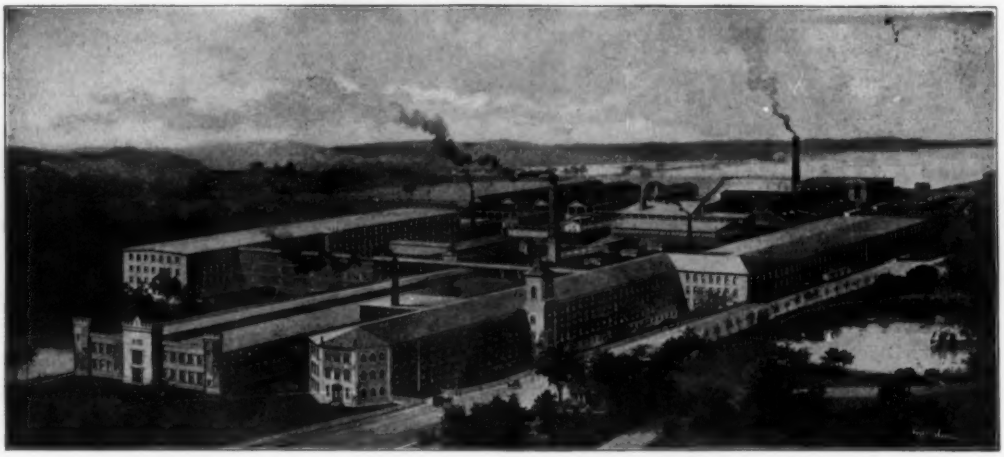
Southern Office, Charlotte, S. C.

THE

WHITIN MACHINE WORKS,

Cotton Machinery

WHITINSVILLE, MASS.



Southern Agent, . . . S. W. CRAMER

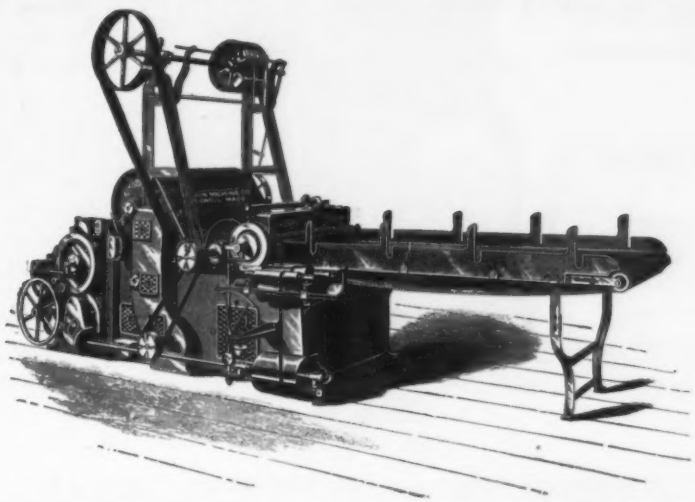
Trust Building, CHARLOTTE, N. C.
and Equitable Bldg, ATLANTA, GA.

Revolving Flat Carding Engines,
Sliver Lap Machines,
Ribbon Lap Machines,
Combers,
Railway Heads,
Drawing Frames,

Spinning Frames,
Spoolers,
Twisters,
Reels,
Looms,
Long Chain Quilling Machines.

The Best Pickers

In the Cotton Field nothing equals the DARKY COTTON PICKERS.



In the Cotton Mill nothing equals the KITSON COTTON PICKERS.

KITSON MACHINE CO., LOWELL, MASS.

LARGEST BUILDERS OF COTTON OPENERS AND LAPPERS IN THE WORLD.

STUART W. CRAMER, Southern Agt., Charlotte, N. C. and Equitable Bldg., Atlanta, Ga.

SCOTT & WILLIAMS

BUILDERS OF

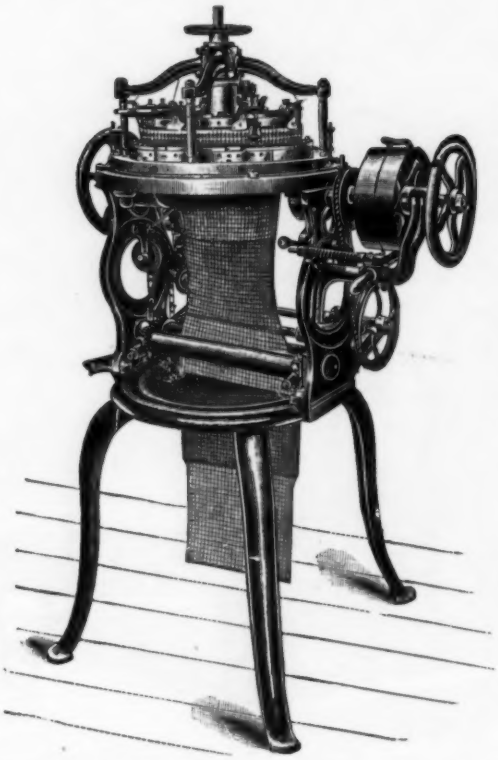
RIB KNITTING MACHINERY

FOR UNDERWEAR AND HOSIERY

The illustration shows our

Improved High Speed Single Lever Automatic Ribbed Underwear Machine

for making ladies' and gents' ribbed underwear, union suits, etc., plain and shaped.



Plain, Single Lever, or with Welt, Slack Course and Automatic Slackening Device for Welt.

Improved Measuring Device, by actual length knit.

Sizes, 8 to 24 inches, inclusive, varying by one inch.

Number of Feeds, four to twelve, according to style and diameter of machine.

Solid Forged Steel Cylinders, specially hardened, or with patent inserted walls for fine fabric.

Special Machinery for Sweaters, etc.

We build Loopers, Ribbers and other Machinery for Knitting Mills.

——AS WELL AS——

A Complete Line of Full Automatic and 7-8 Automatic Seamless Hosiery Machinery.

FULL PARTICULARS, SAMPLES AND SPECIAL CATALOGUES ON APPLICATION.

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BRANSON MACHINE CO.

BUILDERS OF

KNITTING MACHINERY

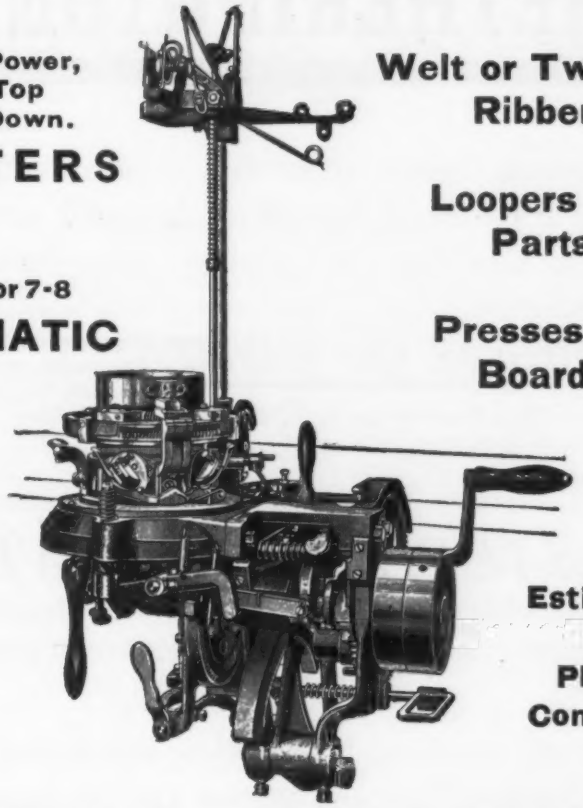
Hand or Power, Open Top or Hold Down.

KNITTERS

1-2, 3-4 or 7-8

AUTOMATIC KNIT-TERS

All Sizes and All Gauges.



Welt or Two-Feed Ribbers.

Loopers and Parts.

Presses and Boards.

Estimates for Plants Complete.

Winders and Bobbins. Hand Forged Steel Cylinders.

BRANSON MACHINE CO.

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Write for information and Catalogue.

Our Fire-Proof Metal Mule Carriage

reduces the danger from fire in the mule head to a minimum, and makes

HETHERINGTON'S

mule spinning more desirable than ever.

Our new Comber is selling beyond anticipations, 300 are now working and giving entire satisfaction.

None better in the world! The opinion of Thomas Ashton, England's great labor leader and member of the British Labor Commission, of the Mule Room at the Soule Mill, New Bedford, Mass., to the "Evening Standard" reporter on Nov. 25, 1902.

These Mules were Sold and Installed by

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186 Devonshire Street, .. Boston, Mass.

Agent for JOHN HETHERINGTON & SONS, Limited, Manchester, England.

Cards, Drawing, Slubbing, Intermediate and Roving Frames.

Combers, Lap and Ribbon Lap Machines.

Improved Heilman Combers. Over 4,000 running in U. S. A.

Catalogues, Information and Estimates on Request.

A FULL LINE OF PARTS FOR ALL OUR MACHINERY

Constantly in stock.

EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

SOLE AGENT IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen and Worsted Machinery

Platt's New Patent Cotton Comber will comb from 7-8 in. stock to Sea Islands.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Special Machinery for Making Cotton Waste into Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery. Archbutt-Deeley System for purifying and softening water.

TEXTILE MACHINERY ASSOCIATION, LTD.

Flax, Hemp and Jute Machinery.

THE PATENT AUTOMATIC FEEDING MACH. CO., LTD.

Patent Feeding Machines for wool, cotton, flax, fur and fibrous material.

GEORGE HODGSON, LTD.

Looms for Worsteds, etc.

JOSEPH SYKES BROS., Card Clothing for Cotton.

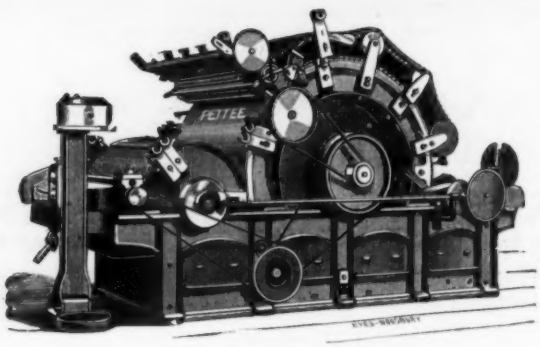
JAMES CRITCHLEY & SON'S, Card Clothing for Woolen and Worsted.

DRONSFIELD BROS'. Grinding Machinery and Emery Filleting.
The best French and English Combing and Rubbing Aprons.
Harding's Pins and Circles, Varey's Fallers, etc.

Saco and Pettee Machine Shops

NEWTON UPPER FALLS, MASS., U. S. A.

COTTON MACHINERY



PICKERS,
REVOLVING FLAT CARDS,
DRAWING FRAMES,
RAILWAY HEADS,

SLUBBING,
INTERMEDIATE AND ROVING FRAMES,
SPINNING FRAMES,

SPOOLERS AND REELS.

Shops: { Biddeford, Me. / Newton Upper Falls, Mass.

Southern Agent, A. H. WASHBURN, Charlotte, N. C.

FOR HOSIERY YARNS

BROADBENT & BRIGHAM'S

Patent Conical and Parallel

Drum Winders

Any traverse from 2 1-2 in. up to 10 in. ARRANGED WITH STOP MOTIONS UP TO SIX ENDS. For first cost, production, quality of work, and cost of winding, it has no equal.

OUR NEW WINDER

12 spindles to a machine any traverse from 2 in. up to 8 in. builds both cones and parallel tubes either the close or open wind, single or many ply from cops, bobbins, or skeins. Production and quality unsurpassed. Samples, prices and full particulars furnished on application.

Machines Carried in Stock for Immediate Delivery.

ARTHUR A. BRIGHAM

186 Devonshire Street

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WINDERS

DR. J. B. HARRIS' SYSTEM

Absolute Combustion of Soft Coal in Steam Boiler Furnaces. . . . NO SMOKE!

Saves Fuel.

Flues and Sheets Always Clean.

Gives Higher Evaporation.

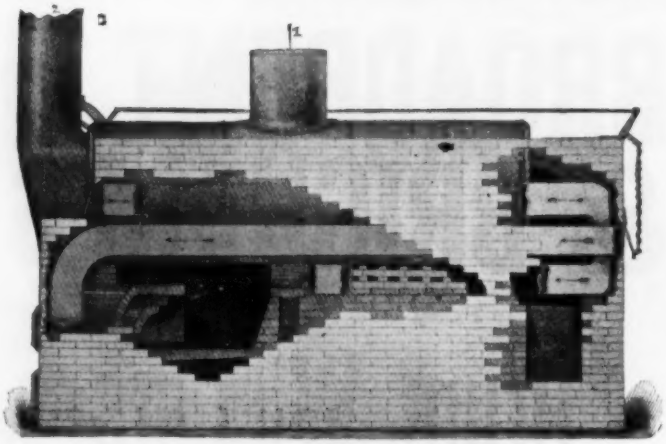
Burns Any Kind of Fuel.

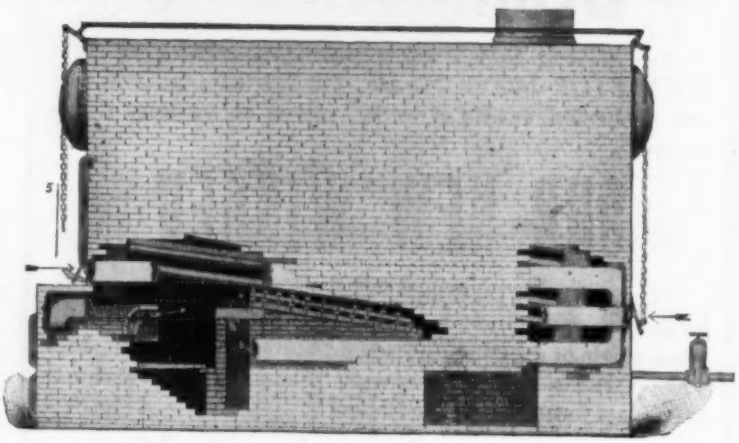
Low in First Cost.

Repairs Nominal and Easily Made.

Durable and Efficient.

Burns Crude Oil Without Smoke or Odor.





GENERAL AGENTS:

INTERNATIONAL STEAM ENGINEERING COMPANY.

NEW YORK: 1110 Washington. Life Bldg., 141 Broadway.

ATLANTA, GA., 528-9 Prudential Building.

W. G. & G. GREENFIELD, Greenfield Steam Engine Works, 5th and Cross Streets, EAST NEWARK, N. J.

ADAM DeTRAMPE, 424 New Land Title Building, PHILADELPHIA, PA.

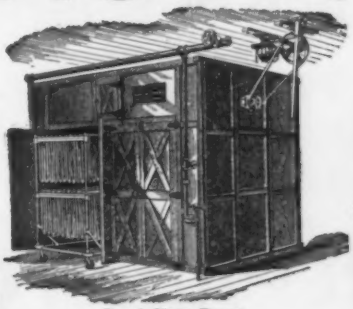
STANLEY ADAMS & CO., 4 and 5 Board of Trade Building, LOUISVILLE, KY.

Catalogue free of nearest agent or address

J. B. HARRIS, M.D., Inventor and Patentee,
71 Arcade, NASHVILLE, TENN.

"HURRICANE" DRYERS AND FANS

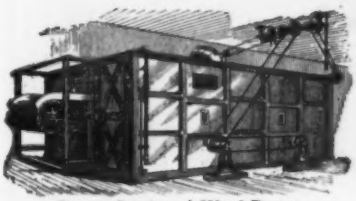
For WOOL, COTTON STOCK, YARN, STOCKINGS, UNDERWEAR, Etc.



Truck Yarn Dryer.

Write for Booklets.

"Hurricane" Fan, Style No. 2.



Cotton Stock and Wool Dryer.

MACHINERY FOR BLEACHING AND CARBONIZING

PHILADELPHIA DRYING MACHINERY CO.

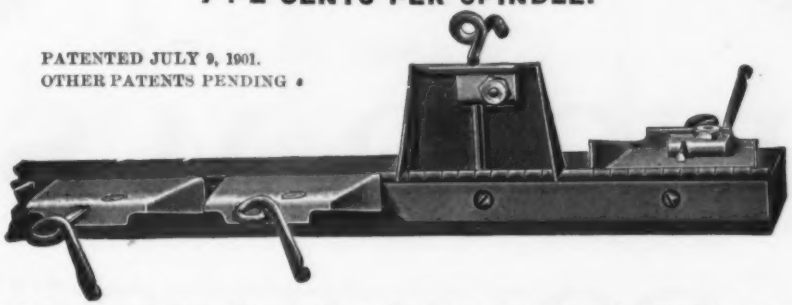
6721 Germantown Ave., Philadelphia, Pa.

HOUGHTON'S ALL STEEL THREAD BOARD

with Hardened Thread Guides.

7 1-2 CENTS PER SPINDLE.

PATENTED JULY 9, 1901.
OTHER PATENTS PENDING.



The only Thread Board that *holds a guide solid* all the time; *never* gets loose; is always in perfect adjustment, and thus must make a saving in travelers, broken ends, waste, thread guide, care and also prolong the wear of rings and increase the production per spindle. These claims are based on the truth of mechanical principles, and have been proven true by actual use in many mills whose superintendents will substantiate these claims.

L. T. HOUGHTON, Sole Manufacturer, WORCESTER, MASS.

THE

A. T. ATHERTON MACHINE CO.

PAWTUCKET, R. I.

The Leading Manufacturers of

PREPARATORY

COTTON MACHINERY

THE GEO. W. STAFFORD COMPANY

READVILLE, MASS.

PLAIN AND FANCY

LOOMS

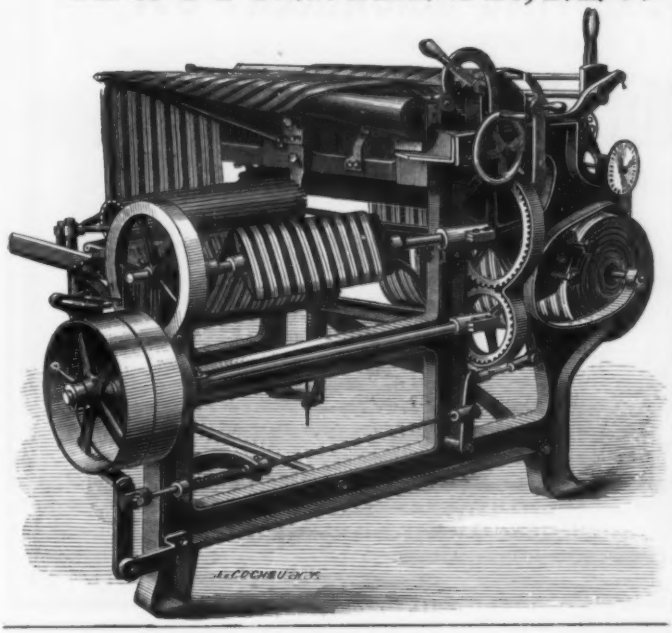
For Silk or Cotton; Automatic Filling Changing Mechanisms,

DOBBIES

Warp Stop Motions.

Fabric Measuring & Packaging Co.

82 & 84 CENTRE ST., NEW YORK, U.S.A.



Machines to Print Trademarks

On Cottons, Woolens and Carpets.

Machines to Measure

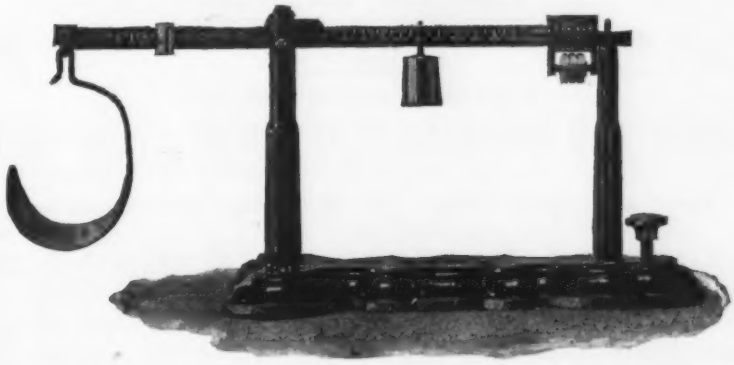
and imprint the measurement upon fabrics, fold lengthwise and roll into merchantable packages all in one operation.

Prevents claims for short measure.
Marks piece numbers on each package.

A Fully Equipped Machine Shop for General Work.

A ROVING or YARN SCALE

That will weigh by HALF GRAINS up to 1,000 GRAINS (over 2 1-4 oz.)



WITH THE WEIGHTS ALL ON THE BEAM. **NO LOST WEIGHTS WITH THIS SCALE.**

One of the most sensitive scales made. Positive and accurate. Send for prices.

SWEET & DOYLE,

COHOES, N. Y.

KNITTING MILL SUPPLIES.

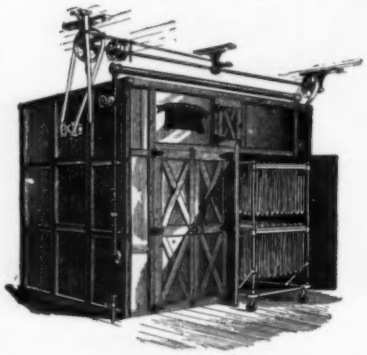
☞We make scales of every description.

AMERICAN DRYING MACHINERY CO.

MANUFACTURERS OF

"20th Century" Drying Machines

FOR WOOL, COTTON, STOCK, YARNS, HOSIERY AND UNDERWEAR.



TRUCK YARN DRYER.

Carbonizing Plants Complete;
Yarn Scouring Machines,
Ventilating Fans, Etc.

OFFICE AND WORKS:

19th and Westmoreland Sts.,

PHILADELPHIA, PA.

CORRESPONDENCE SOLICITED.

Fairbairn Lawson Combe Barbour, Ltd.

LAWSON BRANCH,

Hope Foundry. **LEEDS.** **England.**

MAKERS OF MACHINERY FOR

PREPARING AND SPINNING FLAX, HEMP, TOW AND JUTE

AND OF

Special Machinery for the Manufacture of Twines,

ALSO OF

GOOD'S COMBINED HACKLING AND SPREADING MACHINE,

LONG REACH SCREW-GILL DRAWING FRAMES,

CHAIN-GILL DRAWING FRAMES with Apron Head,

PATENT HIGH-SPEED HORIZONTAL AND AUTOMATIC SPINNING FRAMES FOR MANILLA,

AND OTHER

Special Machinery for the manufacture of Rope Yarns and Binder Twine.

IMPROVED LAYING MACHINES. HASKELL-DAWES TUBING TWISTERS

BROWNELL'S PATENT TWISTING AND LAYING MACHINES FOR TWINE.

Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.

LEST YOU FORGET

ORDER TODAY A

Cross Oil Filter

SENT ON THIRTY DAYS TRIAL; IF UNSATISFACTORY RETURN AT OUR EXPENSE.

We guarantee the CROSS OIL FILTER to save half your oil money.

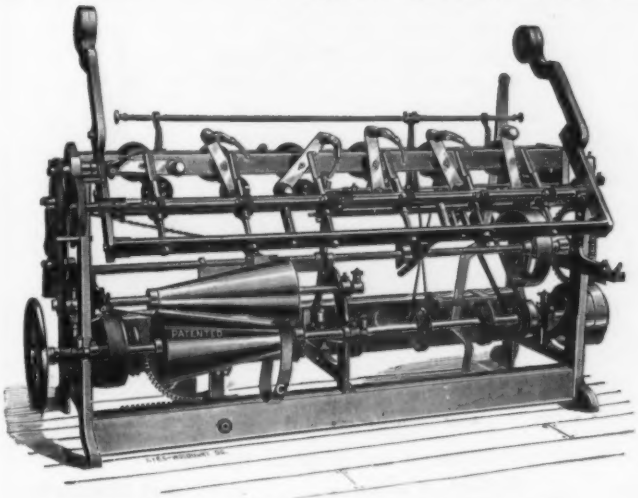
THE SOMERSET CO., BERNARDSVILLE, N. J., SAY IT SAVES HALF THEIR OIL MONEY. HUNDREDS SAY THE SAME.

The BURT MFG. CO. AKRON, OHIO, U. S. A.

LARGEST MANUFACTURERS OF OIL FILTERS IN THE WORLD.
SUPPLIED ALSO BY OIL COMPANIES, ENGINE BUILDERS AND POWER CONTRACTORS.

NORTH CHELMSFORD MACH. CO.

Successors to SILVER & CAY CO.



MANUFACTURERS OF

BALLING MACHINES,
QUILLERS,
REELS,
BALING PRESSES
AND
SPECIAL COTTON MACHINERY.

SPECIAL — AUTOMATIC BALL WINDER.
Adapted to All Kinds of Twines, Silks and Floss.

NORTH CHELMSFORD, MASS.

BIRCH TREE.

ALBERT BIRCH,
Manager.

TEXTILE FINISHING MACHINERY

WORKS ON LINE OF FITCHBURG RAILROAD
No connection with any other concern. Our only place of business for 15 years is at SOMERVILLE, MASS., to which place please address your enquiries.

BIRCH BROTHERS COMPANY

SOMERVILLE MACHINE WORKS,

WOOLEN and WORSTED FINISHING MACHINERY

And also for

BLEACHING, DYEING, DRYING and FINISHING COTTON GOODS.

Send for Circulars and Prices.

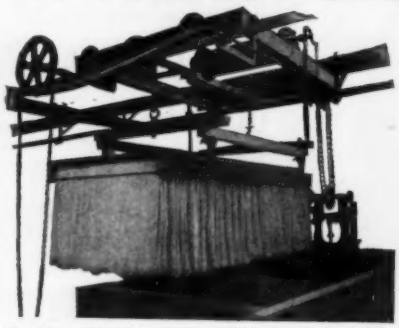
SOMERVILLE, MASS.

The Hussong Dyeing Machine

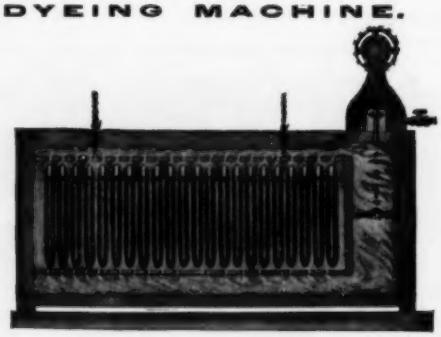
Patented Nov. 6, 1900. April 9, 1901.

For Dyeing both Alizarine and Acid Colors on Yarn.

A PERFECT SKEIN DYEING MACHINE.



This illustration shows our Compressed Air Hoisting Carriage, with 300 pound Yarn Machine suspended.



Longitudinal Sectional View, showing the circulation of dye-liquor through the yarn when in operation.

Points of Superiority Which We Claim for the Hussong Machine.

Durability, Even Dyeing, Saving of Steam, Saving of Dyestuff,
Saving of 75% in Labor, Makes No Waste Whatever, No Friction on the Material,
Requires but Little Power to Operate,
Leaves the Yarn and Slubbing in its Natural Condition.

Built by the AMERICAN DYEING MACHINE COMPANY, Office 609 Pearl St., Camden, N. J.

Reference Given on Application.

Kenyon's Improved Cloth Washer

FOR FOUR, SIX OR EIGHT STRINGS OF GOODS

BEST QUALITY SOLID ROLLS.

Improved trough and valves, preventing wash of liquor and insuring quick and thorough scouring and rinsing.

D. R. Kenyon & Son, RARITAN, N. J.

BUILDERS OF WOOLEN MACHINERY

RODNEY HUNT MACHINE COMPANY

WATER WHEELS,
Horizontal and Vertical.
Iron Flumes.
Rotary Fire Pumps.
Centrifugal Pumps.
Head Gate Apparatus.
Water Wheel Regulators.
Rotary Fulling Mills.
Rotary Cloth Washers.
Endless Felt Washers.
Endless Felt Fulling Mills.
Rotary Knit Goods Washers.
Combined Fulling Mill
and Washer for Knit Goods.
Hammer Falling Stocks.
Dolly Washers.
Crank Fulling Mills.
Crank Knit Goods Washers.
Hydro-Extractors.
Reel Dyeing Machines.
Carbonizing Machines.
Bleaching Machines.
Dye Tubs and Rinsers.
Wool Washers.
Soaping Machines.
Cloth Winders.

PUSHER OR CRANK

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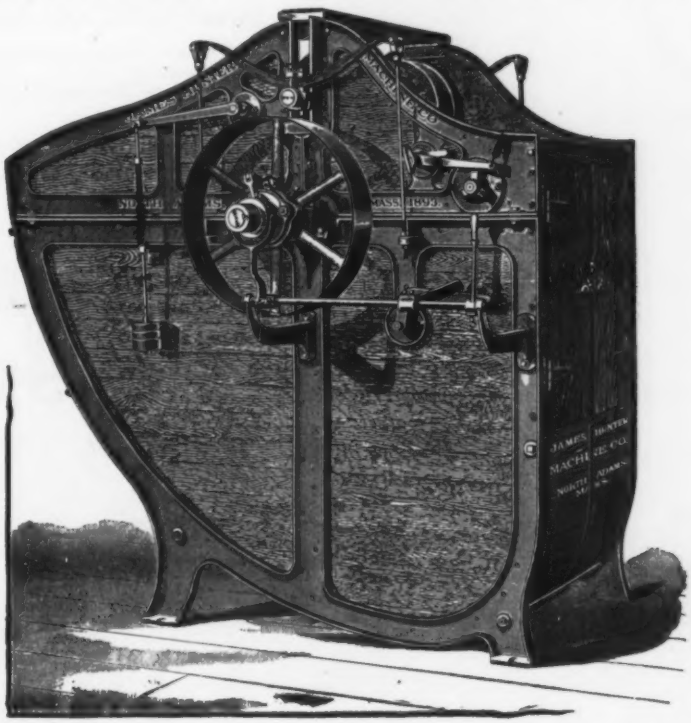

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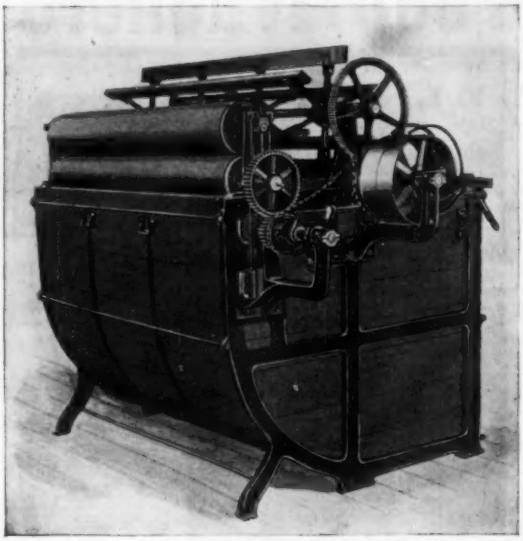

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Send for Catalog, Prices, and also ask about our fulling mill for extra heavy goods and blankets.

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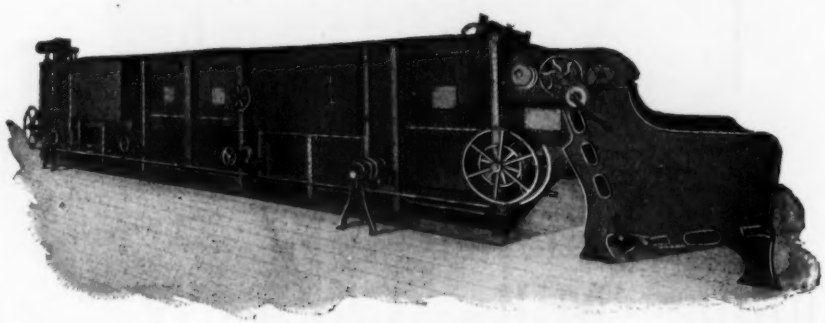

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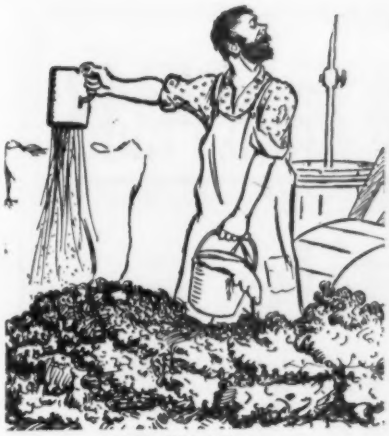

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THE MODERN WAY.

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Oiling and dampening stock with the Spencer Automatic Oiler applied to feed table of wool picker, lumper or lapper. Batches treated as desired. Perfect regulation.

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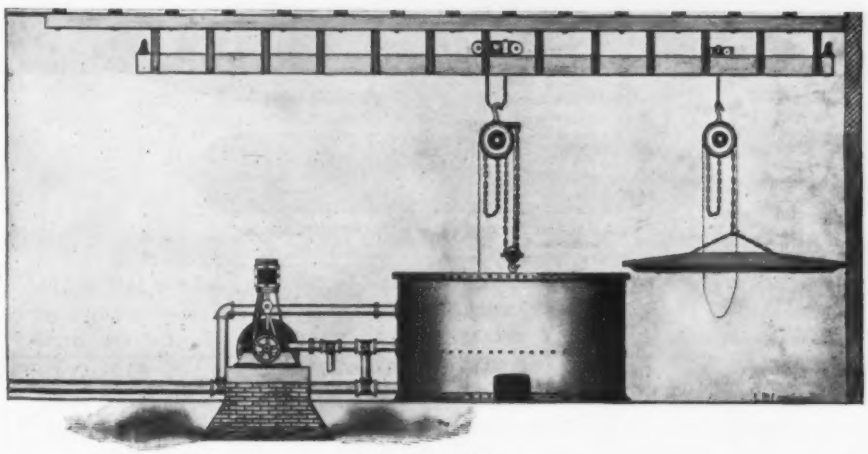

Established 1866.

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GENTLEMEN: In reply to your inquiry as to the operations of the raw stock dyeing machine which we recently purchased from you, beg to say we have had this in operation now about a week and have given it, we think, a very thorough and exhaustive test, and so far are very much pleased with its operations. It is substantially built, we think the principle is entirely correct, its capacity is very ample, and we think will prove to be exactly the machine we have been looking for.

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The machine has been in continuous and successful operation since the above date.

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FILLING COP WINDING MACHINES. Spindles driven by belts or by gears, and bobbins can be made to wind any kind of filling from the coarsest to finest numbers, from Skeins, Spools, Cones, Mule Cops, or any other Spinning or Twister Bobbins. These machines can be arranged to wind cops or butts from the largest used in weaving to the smallest cops or butts for cotton filling used in the silk trade.

OUR MACHINERY PUTS YARN IN CONDITION FOR MANUFACTURING AS SHOWN ABOVE.

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The Only Press that has Self-Yielding Beds with Four Points of Contact

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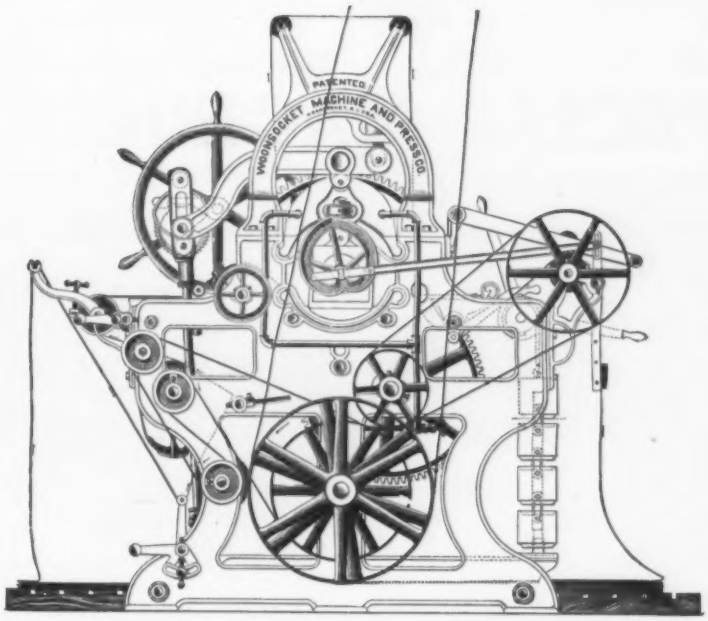

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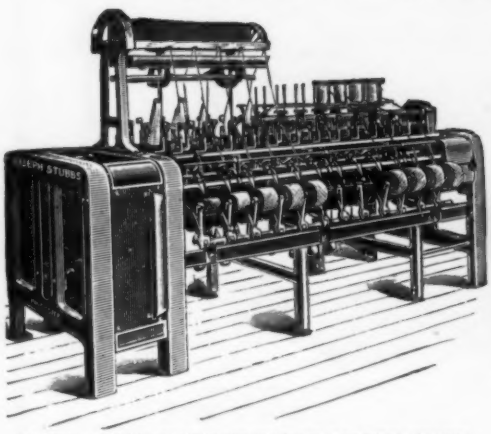

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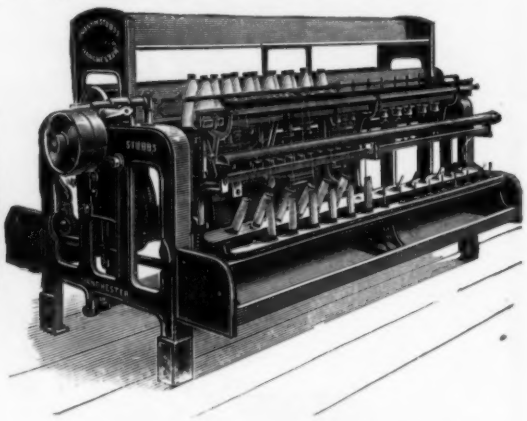

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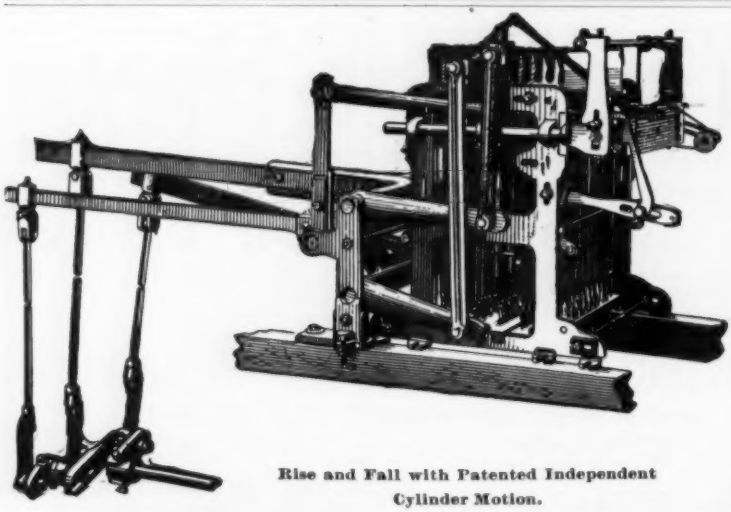

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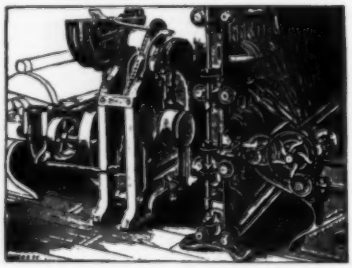

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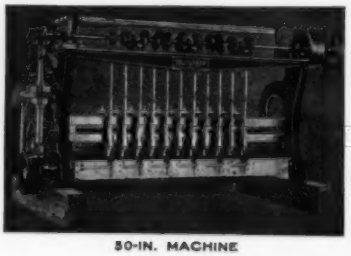

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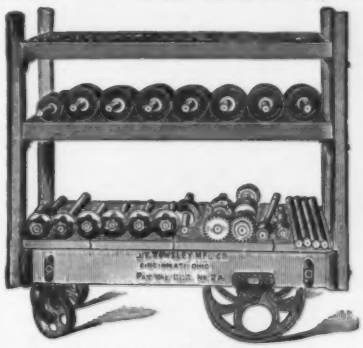

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Built without shelves or with any number desired.

Will be sent on trial.

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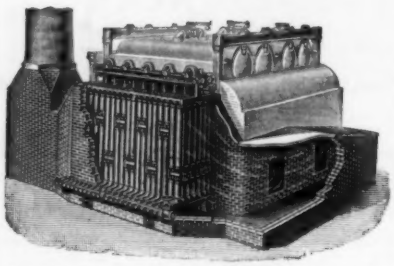

which is the greatest assistant to true economy yet produced. The gain in steam, with the corresponding reduction of fuel, seems incredible, but with our Economizer you can easily save from 10 to 20% in Fuel, and yet, through the use of waste gasses entirely, keep the feed-water heated above the boiling point. What this means to the **Textile Mill, Bleacheries** and **Dyehouses,** is best ascertained through the testimonials of those having one in their boiler room. Our booklet, sent free, shows not only how it is done, but gives you a list of users, and their testimonies as to the value to them. Our great advantage—applied without stoppage to works Write us for plans and specifications.

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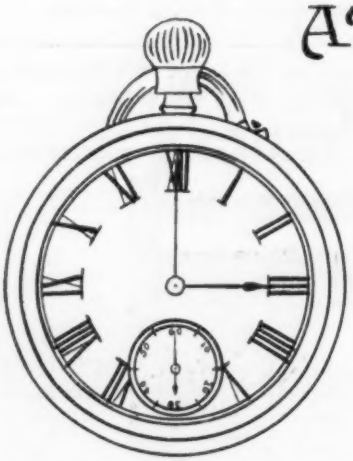

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LATEST MILLER ROTARY STEAM CLOTH PRESS.

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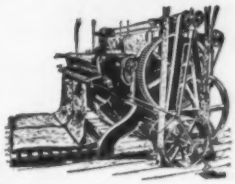

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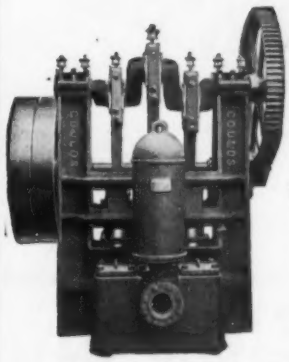

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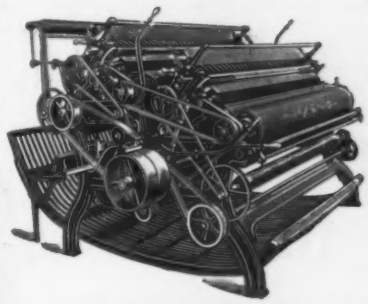

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Mill Sewing Machines

No. 9—Portable Foot-Power Rotary Sewing Machine.

It is especially adapted for use in Cotton and Woollen Mills, Bleacheries, Print Works at the Printing Machines, in Dye Works, Cloth Rooms, at the Fulling Mill, Shears, Calendars, Gigs, Drying Machines, etc., or any of the different finishing processes in textile mills.

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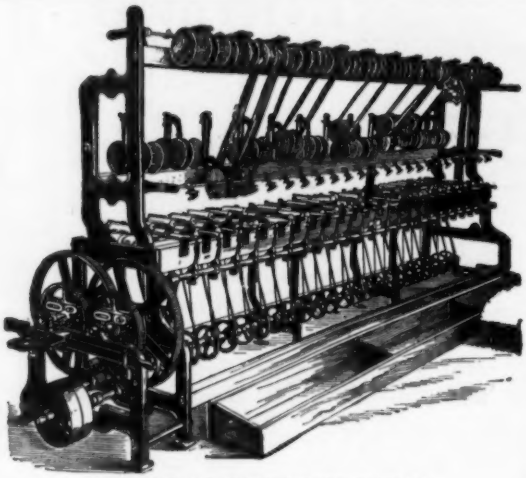
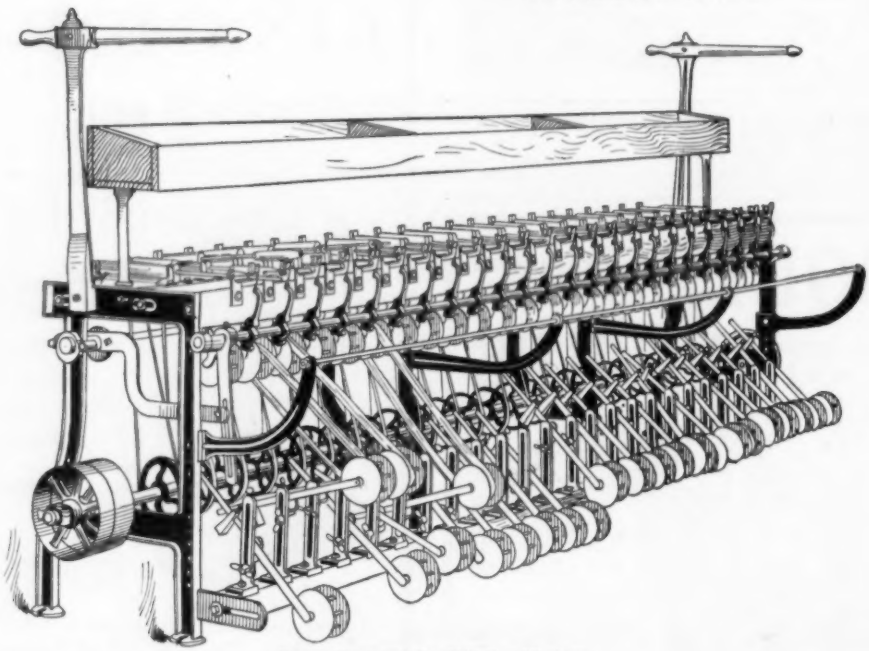


Patent Shuttle Bobbin Winder for Skeins, with Patent Variable Motion.



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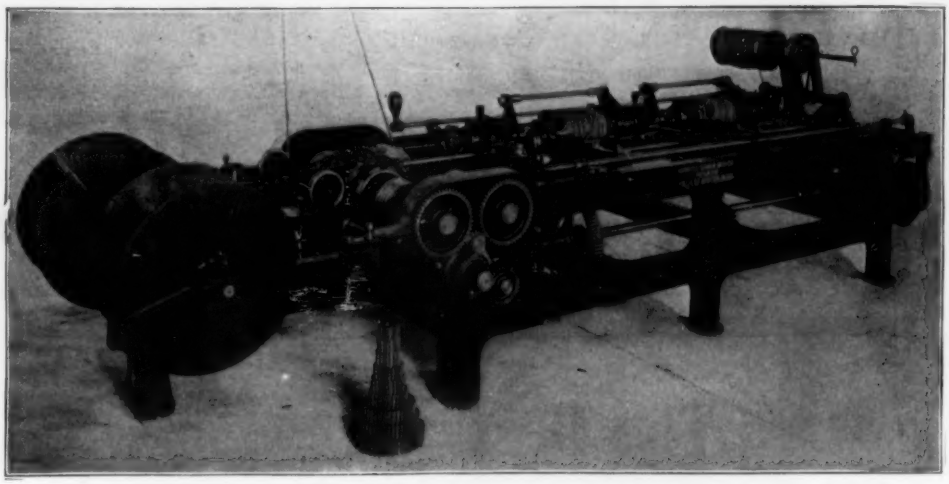
Which are adapted for making all kinds of

COTTON CABLE-LAID TWINE, CORD and ROPE



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SOLID SASH AND CURTAIN CORDS,

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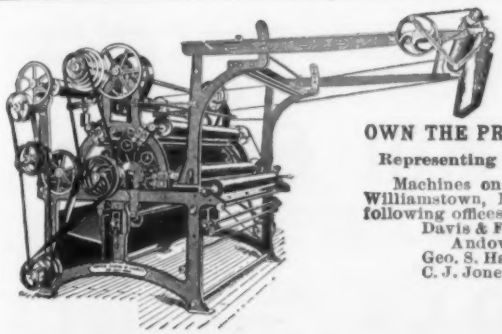

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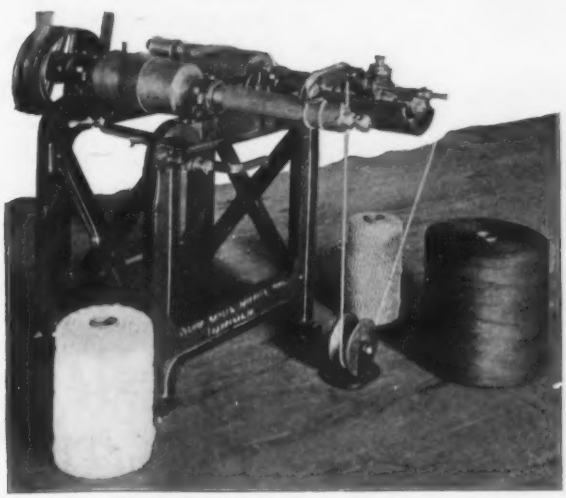

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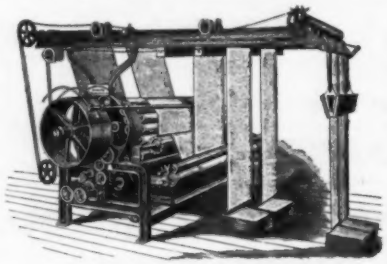

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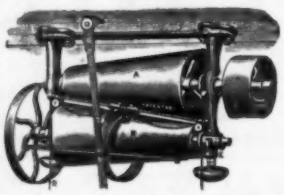

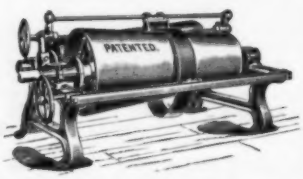

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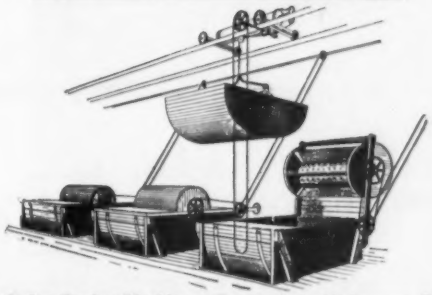

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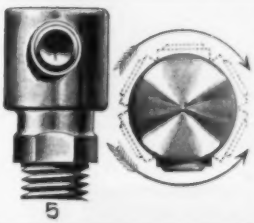

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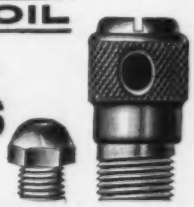

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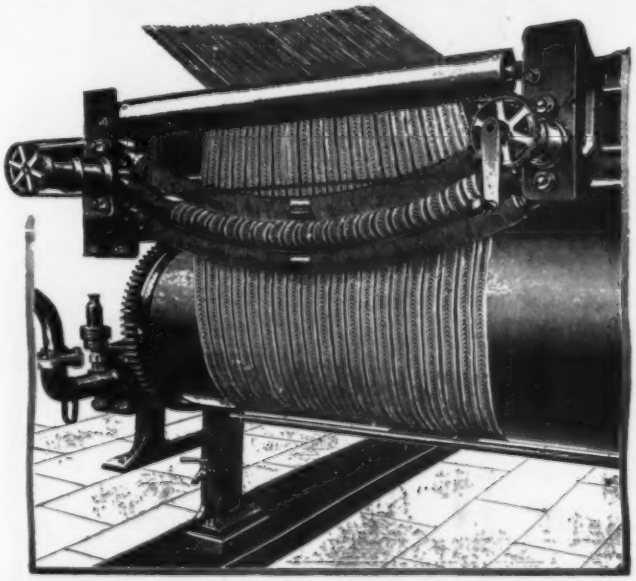

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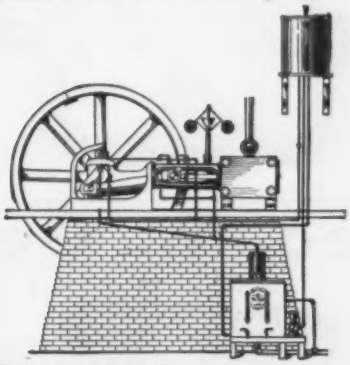

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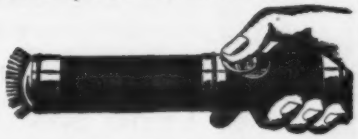

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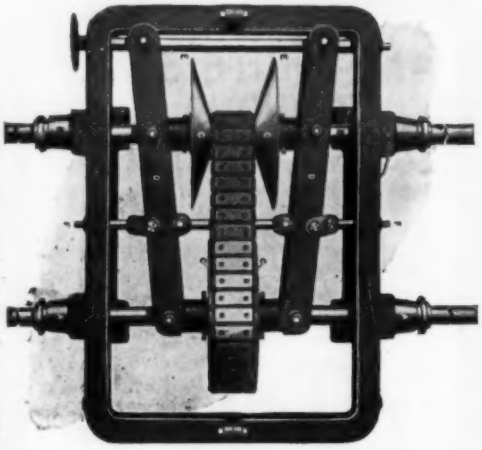

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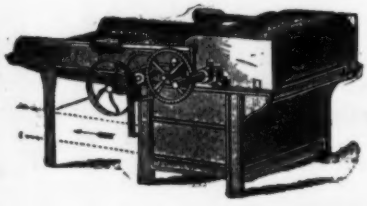

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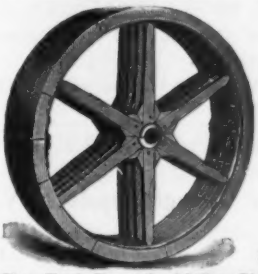

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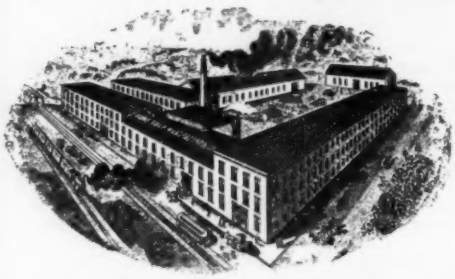

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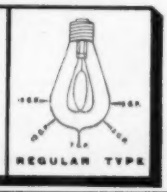

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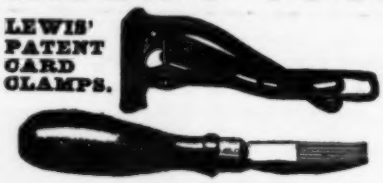

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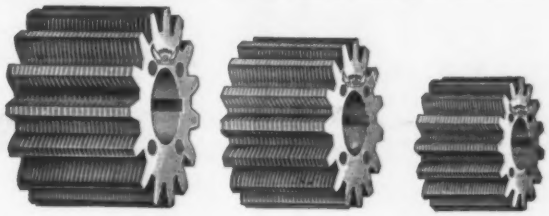

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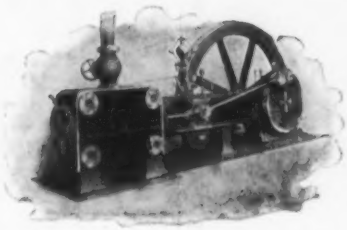

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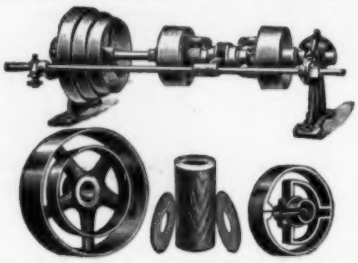

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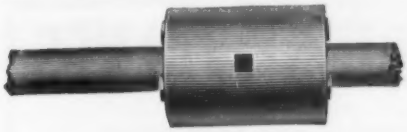

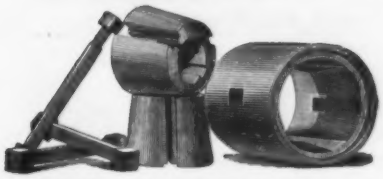

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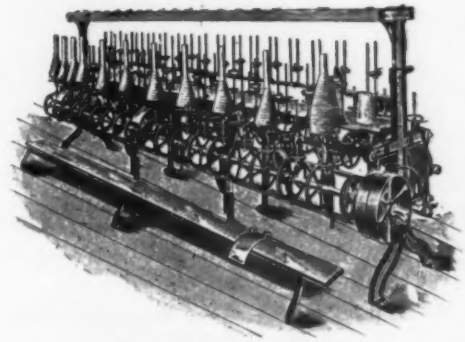

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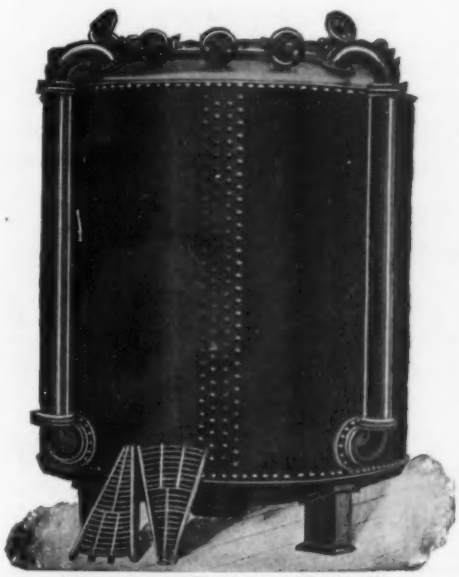

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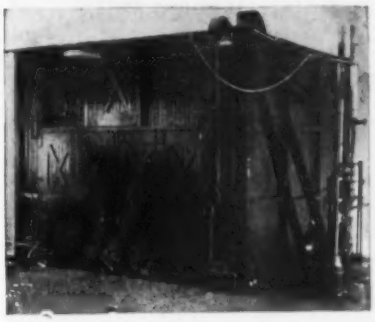

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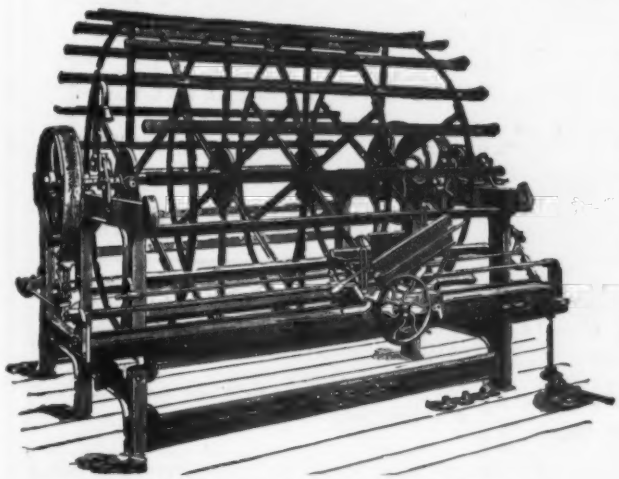

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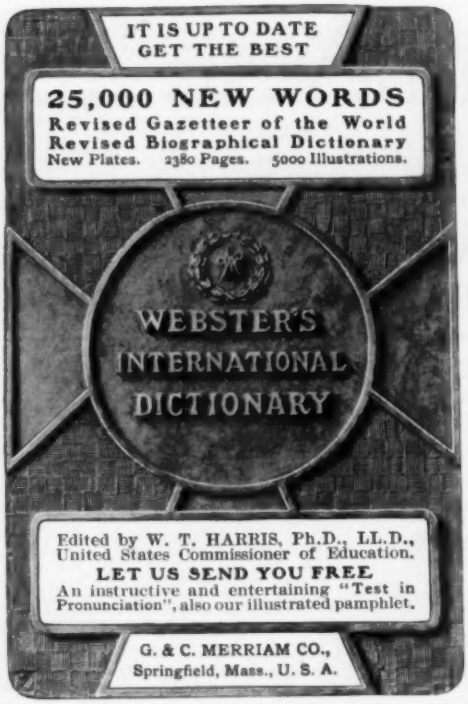
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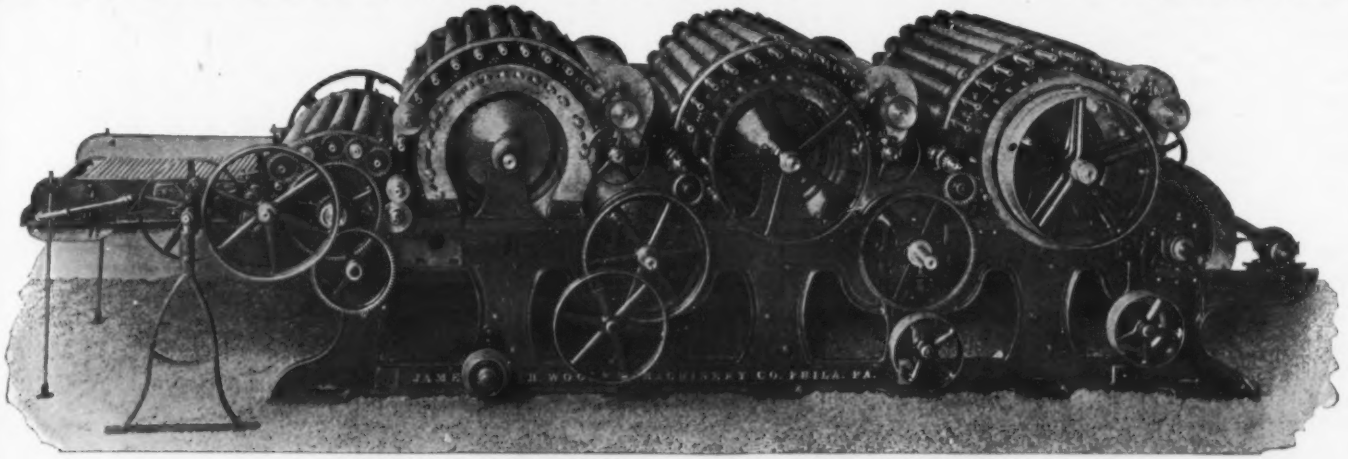

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PART I. Contains a complete directory of all the textile establishments in the United States and Canada. It tells what goods are made, the number of sets of cards, spindles, looms, whether and what they dye or finish, steam or water power, who the selling agents are, the names of the officers, superintendent and buyer.

There are 22 textile maps; gives population of town and railroad connections.

PART II. Is the Yarn Trade Index, containing classified lists of yarn spinners, arranged according to kind of yarn, size and number spun, etc. All the mills with worsted machinery are included in this section.

PART III. Contains Classified List of mills doing order and commission work, also dyeing, finishing, bleaching and printing establishments, classified according to the kind of work done, and so far as possible giving width of goods handled; also shoddy, extract and flock manufacturers and wool scouring establishments.

PART IV. Manufacturer's Selling Agents and Dry Goods Commission Merchants, giving the name and address of concern, character of goods handled, different departments, with managers, list of manufacturing clothiers, and suit and cloak manufacturers, giving specialties and buyers names. A list of city offices of textile mills is given.

PART V. Dealers and Brokers in raw materials and stock, including wool and shoddy dealers and brokers, cotton dealers and brokers, factors and buyers and wholesale rag dealers making a speciality of textile interests.

PART VI. Buyers Index of Textile Machinery and Supplies, and statistics showing textile machinery in the United States, giving spindles, looms, knitting machines, etc.

The Directory of the Knitting Trade in the United States and Canada

is published early each year by Lord & Nagle Company. It is a complete directory of all the establishments in the United States and Canada manufacturing knit goods. It gives the location of the mill, the capital stock, names of the officers, superintendent and buyer, class of goods made, the machinery, including number of knitting machines and sewing machines, selling agents, if any, and in most cases the class of yarn bought. It also contains a list of commission houses making a specialty of knit goods, and jobbers and large retailers having knit goods department, in most cases giving the names of manager in charge of knit goods. The book is small so that it may be carried in the pocket. Price is $2.00.

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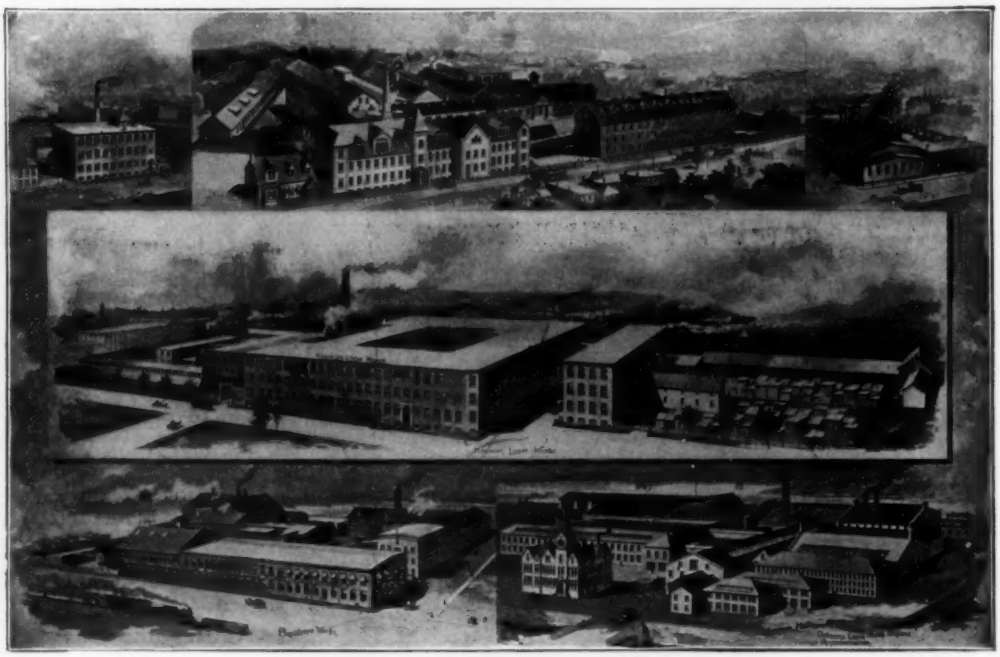

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We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

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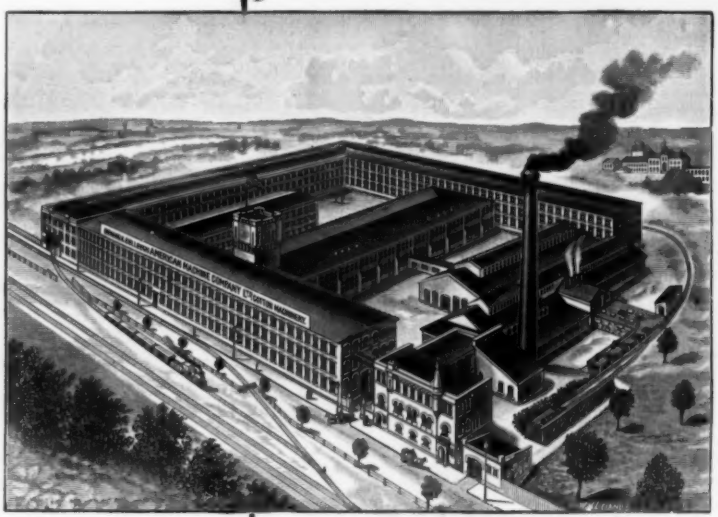

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Monthly Comment.

Lancashire Proposes Short Time.

Last month the Federation of Master Cotton Spinners' Associations held a meeting at Manchester, England, and adopted the following resolution:

1. That communication be entered into at once with American and Continental associations engaged in the cotton trade, and that the following cable be sent to each:—"Lancashire is suggesting short time in the cotton trade. Are you prepared to do the same?"

It is not likely that an international movement can be started to bring about short time in the cotton mills. The conditions under which cotton manufacturing are carried on in America are so different from those in Europe as to render such an attempt hopeless. In this country goods are manufactured chiefly for the home market; the manufacturing cost and the selling price are both higher, and a protective tariff goes far towards preventing foreign competition. The European mills, on the other hand, are in a very different position. They use American cotton, and as far as raw material is concerned are on the same footing as American mills, but their manufacturing cost is lower on account of cheap labor, and they are compelled to dispose of their product in competition with each other in the lowest priced markets in the world.

Any agreement to curtail production by manufacturers working under such widely different conditions is impossible. There is something grotesque in the idea of American cotton spinners, operating 23,000,000 spindles to supply the home market, shutting down their mills that foreigners with 82,000,000 spindles may be able to buy American cotton for less money. It is safe to say that if short time comes to American mills it will be due wholly to domestic conditions. Our foreign trade in cotton goods is not yet large enough for us to make common cause with foreign spinners to depress the price of American cotton.

The accompanying chart illustrates in graphic form the tribute which other countries are paying the United States for a supply of cotton. For the eleven months ending November, 1903, the cotton exported from the United States was valued at $306,204,847, divided among the different countries as follows:

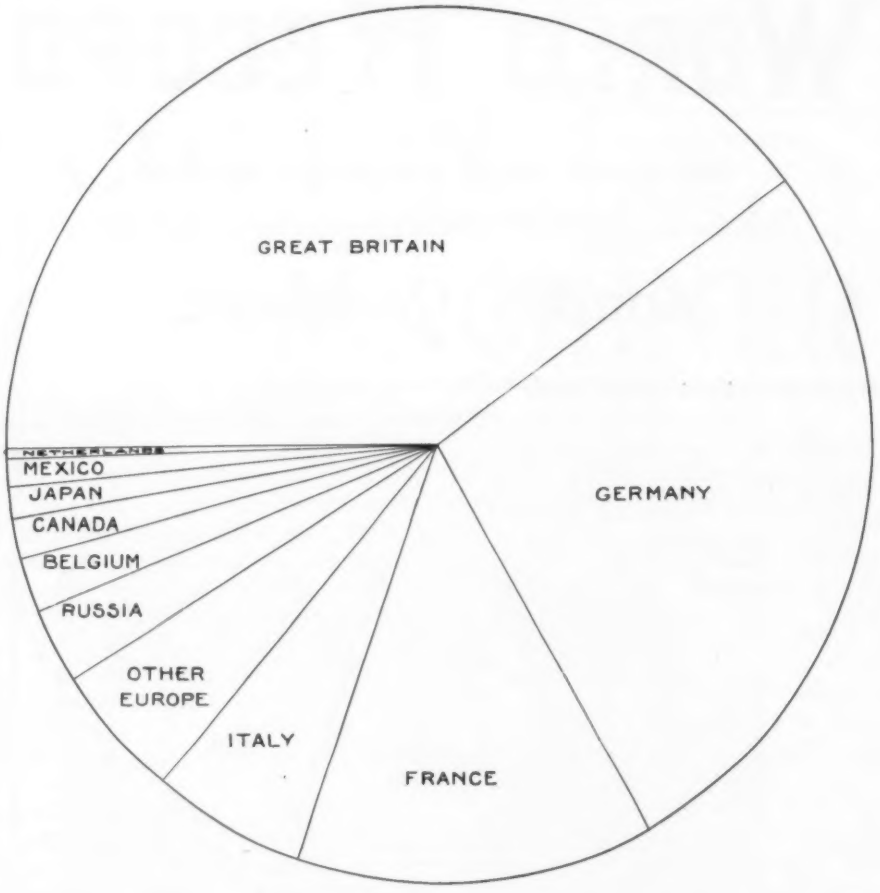
United Kingdom	$121,997,352
Germany	83,659,020
France	40,663,007
Italy	17,514,785
Other Europe	15,291,953
Russia	8,438,204
Belgium	6,307,807
British North America.	4,699,311
Asia	3,841,022

Mexico	2,669,521
Netherlands	1,122,865

It is interesting to compare the exports of cotton for this period with those for the corresponding period in 1901. In 1901 we exported 3,023,243,000 lbs., valued at $257,850,-

pound amounts to $2.08, and at 12 cents per pound to $3.12. Thus the rise in cotton from 8 to 12 cents means an increased expense for each person in the United States of but $1.04 per year.

The rise in the price of cotton, even if per-



DESTINATION OF THE 3,039,429,517 LBS. COTTON EXPORTED FROM THE UNITED STATES, IN 11 MONTHS ENDING NOVEMBER, 1903.

172. For 1903 the weight (3,039,429,517 lbs.) was practically the same, but the value jumped to $306,204,847, a gain of $48,354,675.

This is a substantial increase in the wealth of the people, while the increased cost of domestic cotton goods due to this rise in cotton is but a trifling amount per capita of our population. The estimated per capita consumption of cotton by the people of the United States is 26 pounds, which at 8 cents per

manent, is at the worst but a temporary difficulty for American spinners, because the price of goods will soon rise in proportion, and the American consumer is able to pay the increased price. This ability is still further increased by the increased flow of money from abroad to pay for the surplus cotton we sell. For European spinners, however, high priced cotton means disaster. The consumers of their goods are poor and unable to pay more

than present prices. An advance in the price of goods to recompense the foreign manufacturer for the increased cost of the raw material is impossible. The situation is fraught with peril to foreign industry and commerce, and there is, moreover, no prospect of any escape from it. Each year sees a larger quantity of cotton retained in America for domestic consumption, leaving less for foreign mills, while the efforts to secure a supply from other countries is attended with but little success. The gravity of the situation can be readily appreciated when we consider that cotton is one of the corner stones of human society, and that the extension of civilization depends upon a liberal supply of this fibre.

The Woolen Industry in England.

Advices from England, particularly those from the Huddersfield district, report a very unsatisfactory condition in the woolen industry. The trade of English mills is greatly restricted by the Dingley tariff and exports of English woolens to the United States have shrunk nearly to the vanishing point. During the last year these exports were, with one exception, the lowest since 1897. The United States consul at Huddersfield reports that English manufacturers ascribe this continued loss of business with the United States to the increased skill of American woolen manufacturers. The English woolen mills are also menaced by German goods which are sold in pieces and in clothing in all parts of the kingdom at prices so low as to astonish even English manufacturers. As woolen goods are admitted into England free of duty the depressed condition of the woolen business is an additional argument in favor of the Chamberlain policy of protection.

Instruction in Lace Making.

The French government has during the past year endeavored to revive the hand made lace industry, by establishing courses of instruction in lace making in several industrial schools. These efforts have been supplemented by the chambers of commerce in various parts of the country who have also established schools for instruction in hand lace making. These efforts have not been followed by any practical results. Very little interest has been shown in the schools; the attendance has been very small, and it has been recognized that the need is for designers of lace rather than for more hand workers.

The government has not abandoned its efforts to infuse new life into the industry, but on the contrary has provided that the primary schools in the lace making districts shall give practical instruction in lace making to girls. Plans are also being made to establish special schools for designers in lace work. It is understood that in these schools instruction is to be confined to girls and women.

Wool Statistics.

In the annual wool review of the National Association of Wool Manufacturers, W. J. Battison calls attention to the lack of reliable statistics regarding the production of wool, and contrasts the care taken in compiling the statistics of the production of cotton with the total neglect shown in respect to the wool product. We quote from the report as follows:

It is deplorable that so much uncertainty as to the source of supply of this raw material should exist in an industry of so great importance as the wool manufacture, which, in its various branches, is the second of the textiles, and tenth in rank of all the manufacturing industries of the country. It is far more intricate and requires much more skill in its management than the cotton manufacture, which exceeds it in value of product and capital employed, but not in number of establishments or cost of materials used. The Government has provided for an annual official investigation to ascertain, at the earliest possible date, the size of the cotton crop, and it might readily undertake a like service for the wool manufacture. It is announced that the wool growers' associations intend to petition the Congress to provide for a census of live stock, and of the wool clip in 1905, and thereafter at intervals less widely separated than the decennial censuses. An accurate knowledge of the quantity of wool produced annually, its quantity and condition, would be invaluable to the wool manufacturer, dealer, and grower.

The value of wool manufactures, according to the last census, was nearly $300,000,000, and it is certainly no less at this time. The seaboard value of the wool clip of this year is $58,700,000, and the

amount of capital invested in producing, marketing and manufacturing it is many hundreds of millions of dollars. With the statistical data of the cotton industry so well provided for, it would seem that the Census bureau might be entrusted with a similar inquiry for the benefit of the kindred industry—the wool manufacture. It would be only necessary to utilize its present force, with, perhaps, the assistance of the trained correspondents of the Department of Agriculture.

This suggestion should be followed. Lack of information often enables speculators to take an unfair advantage of a condition concerning which they have advance information. Reliable statistics would unquestionably be a benefit to both the wool grower and the wool manufacturer.

The Jute Crop in Bengal.

Jute is cultivated in forty-seven districts in Bengal. Two-thirds of the crop comes from the east presidency, principally from Mymensingh, Tippera, Dacca, Pabna, Rajshahi and Bogra. This year the rainfall was deficient in nearly every district. For this reason the crop is late and the area planted much smaller than in previous years. The jute acreage in Bengal averages about 2,326,000 acres, with a crop of about 5,750,000 bales. Last year it was estimated that the area planted was 2,106,000 acres and the actual crop 76 per cent. of the average yield. These figures were modified later and raised to 2,200,000 acres with a product of 5,300,000 bales. The figures as to jute exports indicate that the actual crop is not less than 5,800,000 bales. A careful estimate for this season places the acreage at 2,019,100 acres. This is less than last year owing to the deficient rainfall, but as the actual area usually turns out to be much larger than the estimate, it is safe to say that there will be about 2,100,000 acres under cultivation this year. Taken as a whole the yield is more favorable than last year in the important districts of Mymensingh and Tippera, where it is estimated at 90 per cent. The average for the entire presidency is estimated at 85 per cent., assuming that the normal conditions of last year continue throughout the season. The stock of last year's jute is nearly exhausted.

Late reports state that owing to favorable weather the crop is larger than was expected. The actual area is placed at 2,250,000 acres and the average yield at 93 3/4 per cent., equal to 6,350,000 bales.

Duty on Raw Silk.

The United States customs appraisers at New York have recently rendered a decision in a case involving the duty levied on raw silk imported on cops or tubes instead of in the form of skeins. It is customary to import raw silk in skeins and the collector at New York decided that the invoice of raw silk on tubes was dutiable as thrown silk. It appears that the silk in question had simply been wound on tubes for the convenience of throwsters and was in every other respect the same as the raw silk of commerce which is ordinarily sold in skeins. The importer appealed from the decision of the collector and the majority of the board sustained his protest, deciding that the form in which raw silk is imported does not affect the duty to be levied on it. One of the appraisers dissented from the majority opinion in a long report in which he claimed that the winding was a form of throwing, and that by delivering the silk to the throwsters on cops the American operative was deprived of a certain amount of the labor of that process.

The opposite opinion of the majority seems to be the more reasonable one, but it frequently happens that decisions on questions of this kind open loopholes in the tariff law by which partially manufactured goods are imported in violation of the spirit if not the letter of the law. The danger resulting from this decision is that European throwsters may find it possible to send partially thrown silk to this country free of duty.

The French fabric, poplin, was at first made entirely of silk and used for making the elaborate church vestments of the 17th century.

It has been estimated that, taking the population of the world at 700 millions, it would require a consumption of two and one-half pounds per head per annum to work off each new clip of wool.

The School of Experience.

On Nov. 9, 1903, Mr. Shafroth of Colorado, introduced in the House of Representatives the following bill for the adoption of the metric system in the United States:

That on and after the first day of January, 1905, all the Departments of the Government of the United States, in the transaction of all business requiring the use of weight and measurement, except in completing the survey of public lands, shall employ and use only the weights and measures of the metric system, and on and after the first day of January, 1906, the weights and measures of the metric system shall be the legal standard weights and measures of and in the United States.

It may be profitable to compare the Shafroth bill with the beginning of the metric legislation in France, and to note the results of the attempt that has continued for more than a century to make the metric system the textile standard in that country.

On August 1, 1793, six months after the execution of Louis XVI, three months before the execution of Marie Antoinette, at the height of the Reign of Terror, the Convention, dominated by Danton and Robespierre, issued the following decree:

The new system of weights and measures founded on the measurement of the earth's meridian and the decimal division will be used throughout the Republic.

For over 110 years the attempt to make the metric system the textile standard in France has continued. Following are some of the drastic laws to force that system on the French textile industry:

Decree of 1795. On 1 nivose approaching the use of the meter shall be substituted for that of the aune in the commune of Paris, and ten days after that date in the deparment of the Seine.

All violators of this ordinance shall be punished by the confiscation of the illegal measures and will be brought before the police tribunal where a fine will be imposed to suit the case.

Decree of 1810. On and after March 1, 1811, all proprietors of spinning mills shall make the hanks of cotton, linen, hemp or wool each 100 metres long, so that a skein shall measure 1000 metres in length.

These yarns shall be ticketed with the number of such skeins in one kilogram.

Violations of the foregoing provisions shall be considered breaches of the police regulations and punished by a fine of not less than five nor more than fifteen francs for the first offense; the fine may be increased for a repetition of the offence.

In 1900 a French textile manufacturer thus described the condition of textile weights and measures in France:

We hope no new burdens will be imposed on the industry, but if we look the facts in the face we will find that notwithstanding the decree of 1810, and in spite of the serious efforts put forth by industrial societies of many districts, we still have the ancient units of weights and measures, and we scarcely comprehend each other when we talk of spinning at Reims, Roubaix, Elboeuf, Sedan or Vienna where the skeins still measure 1,420, 710, 3,600 or 1,500 metres.

On Oct. 15, 1902, another French textile manufacturer referred to the same subject as follows:

We are as much in the anarchy of weights and measures for the textile industry as at the time of the Revolution, for we have the denier of Montpelier and of Milan for silk with the aune as the unit of length. We still have the diverse standards of Roubaix, Fourmies, and of Reims for worsted, the moque of Sedan, the livre, the quart, the sous of Elbouf, the yard for linen, etc.

The attempt to change French weights and measures, whose failure is thus publicly confessed, has continued for 110 years under conditions highly favorable for its success. It was begun when the textile industry was carried on entirely by hand power in a country with but one-nineteenth of the area and one-third of the population of the United States. It has been highly favored by an almost stationary population, the growth of population in France during the past century being no greater than that in the United States during the past decade.

Since its establishment the metric system has been forced on the French people by the most drastic of compulsory laws, which Americans would not tolerate for an instant.

This attempt has failed in France because weights and measures once established cannot be changed by arbitrary law, and the failure has been made more complete by the fact that the metric units are not well suited for textile work.

This attempt was begun and has been con-

tinued in France to remedy a diversity that has no parallel in this country. At the present time the yard-pound is the single textile standard of the United States and of the British Empire. It is the single textile standard for cotton in all the world except France, and the French cotton standard is not metric. The English yard-pound is, with the exception of a local Austrian standard, the world's single standard for linen, flax and hemp. The metric system is not the standard for any textile material in any country on earth.

The use of the yard-pound is being extended with the growth of British and American commerce and power. Its adoption throughout the world is the result of a natural process of commercial and political evolution, which law cannot change. If Continental Europe wants a unification of textile weights and measures let them take the nearest way and accept the English yard-pound.

Information Wanted.

The Hon. Charles H. Grosvenor of Ohio, has introduced a bill into Congress providing regulations for the manufacture, ticketing and taxation of "mixed goods." It is the Grosvenor shoddy bill of 1901 in a modified form, the text of the new measure being as follows:

To provide for Federal inspection and taxation of mixed goods and the proper marking of the same:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purposes of this Act the words "pure wool" shall be understood to mean sheep's wool which has not been previously used in the manufacture of any other article, goods, or fabrics, and the words "woolen goods" shall be held to mean goods or fabrics composed wholly of such wool, or of goods or fabrics composed in part of such wool and of other ingredients of equal or superior value.

Sec. 2. That for the purposes of this Act all manufactures made in imitation of woolen goods which are not composed wholly of pure wool, or of such wool and other ingredients of equal or superior value, shall be known as "mixed goods."

Sec. 3. That manufacturers of mixed goods as defined in this Act shall pay fifty dollars per year; that every person who engages in the production of mixed goods as defined in this Act as a business shall be considered a manufacturer thereof; that wholesale dealers in mixed goods as defined in this Act shall pay a tax of twenty-five dollars a year; that every person who sells mixed goods as defined in this Act by the bolt, or in a condition not ready for consumption, shall be deemed a wholesale dealer in mixed goods: that upon mixed goods as defined in this Act, when manufactured or sold or removed for consumption or use, there shall be assessed and collected a tax of one-tenth of one cent a pound, to be paid by the manufacturer thereof, and any fractional part of a pound shall be taxed as a pound. The tax to be levied upon mixed goods by this section shall be represented by coupon stamps, and the provisions of existing laws governing engraving, issuing, sale, accountability, effacement, and destruction of stamps relating to tobacco and snuff, as far as applicable, are hereby made to apply to the stamps provided by this section.

Sec. 4. That every manufacturer of mixed goods as defined in this Act shall file with the collector of internal revenue of the district in which his manufactory is located such notices, inventories, and bonds, shall keep such books and render such returns of material and products, shall put up such signs and affix such number of his factory, and conduct his business under such surveillance of officers and agents as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may by regulation require. But the bond required of such manufacturer shall be with sureties satisfactory to the collector of internal revenue, and in a penal sum of not less than five hundred dollars; and the sum of said bond may be increased from time to time and additional sureties required at the discretion of the collector or under instructions of the Commissioner of Internal Revenue; and sections thirty-two hundred and thirty-two, thirty-two hundred and thirty-three, thirty-two hundred and thirty-four, thirty-two hundred and thirty-five, thirty-two hundred and thirty-six, thirty-two hundred and thirty-seven, thirty-two hundred and thirty-eight, thirty-two hundred and thirty-nine, thirty-two hundred and forty, thirty-two hundred and forty-one, and thirty-two hundred and forty-three of the Revised Statutes of the United States are, so far as applicable, made to extend to and include and apply to the taxes imposed by this Act and to the person upon whom they are imposed.

Sec. 5. That every person who carries on the business of a manufacturer of mixed goods as defined in this Act without having paid the special tax therefor, as required by law, shall, besides being liable to the payment of the tax, be fined not less than one thousand and not more than five thousand dollars; and every person who carries on the business of a wholesale dealer in such mixed goods without having paid the special tax therefor, as required by law, shall, besides being liable to the payment of the tax, be fined not less than fifty nor more than five hundred dollars for each offense.

Sec. 6. That all manufacturers of mixed goods

shall mark, label, or tag such goods in plain printed letters and figures which can not be detached except by design, and the mark, label, or tag shall state accurately the constituent fibers or other materials or substances of which such goods are composed, and the relative portion or per centum of each.

Sec. 7. That all clothiers, tailors, or other persons who shall make any mixed goods into clothing, garments, or any article whatsoever, to be sold as such, shall also place thereon and firmly attach to each and every garment and article so made a label, tag, or tab similar to that required of the manufacturer of the goods or fabrics of which it is made, and showing the same facts.

Sec. 8. That all mixed goods of every kind and description whatsoever, including cloths, clothing, and every article manufactured or in any of the processes or stages of manufacture, imported from foreign countries shall be marked, labeled, or tagged as provided for in case of manufactures of the same in the United States. The labels, tags, or tabs required by this Act shall be affixed by the owners or importers while it is in the custody of the custom-house officers, and it shall be the duty of such officers to inspect all such goods, fabrics, or other articles and see that they are properly labeled; and such goods shall not pass out of the custody of such officers until such labels or tags have been so affixed; and every officer of customs who permits any mixed goods as defined in this Act to pass out of his custody or control without compliance by the owner or importer thereof with the provisions of this Act shall be guilty of a misdemeanor, and shall be fined not less than one thousand dollars nor more than five thousand dollars and imprisoned not less than six months nor more than one year.

Sec. 9. That any manufacturer or importer of mixed goods as defined in this Act who shall sell, offer to sell, or permit to be sold or removed from the place of manufacture or the custody of the custom-house officers any goods, fabrics, or articles of any kind whatsoever manufactured, or in the process of manufacture, without being properly marked or labeled as required by this Act shall be guilty of a misdemeanor, and shall be fined not less than fifty dollars and not more than five hundred dollars for each such offense.

Sec. 10. That any clothier, tailor, merchant, or other person who knowingly purchases from the manufacturer, importer, or other person any mixed goods as defined in this Act, which are not labeled or marked according to the provisions of this Act, shall be guilty of a misdemeanor, and shall be fined not less than fifty dollars and not more than one thousand dollars for each such offense; and any such clothier, tailor, merchant, or other person so purchasing such goods as aforesaid who shall manufacture into clothing and sell or offer to sell the same, or any such person who shall sell or offer to sell or expose for sale any such goods or fabrics without being properly labeled, shall be guilty of a misdemeanor, and shall be fined not less than one hundred dollars and not more than one thousand dollars for each such offense.

Sec. 11. That any manufacturer, merchant, dealer, agent, employee, or other person who shall knowingly sell, trade, or exchange, or offer to sell, trade, or exchange, or expose in his place of business for the purpose of trade, sale, or exchange, any clothing, goods, fabrics, or other articles known as mixed goods as defined in this Act, which are not labeled, marked, or tabbed according to the provisions of this Act, shall be guilty of a misdemeanor and be fined not less than one hundred dollars and not more than one thousand dollars.

Sec. 12. That any manufacturer, importer, merchant, or other person who shall willfully, recklessly, or carelessly mark incorrectly any cloth, goods, fabrics, or any article manufactured, or in the process of manufacture therefrom, required by this Act to be labeled or marked, so as to show a larger per centum of wool or a smaller per centum of shoddy or other cheaper fiber or material, or in any manner that will, or is calculated to, deceive and mislead the purchaser thereof, shall be guilty of a misdemeanor, and shall be fined not less than fifty and not more than five thousand dollars for each such offense.

Sec. 13. That, in addition to the fines hereinbefore described for the violation of the several provisions of this Act, any importer or owner of imported goods, and any merchant, tailor, dealer, or other person found guilty of the violation of any of the provisions of this Act, for the failure to properly mark or label goods, fabrics, or any other article defined as mixed goods, shall forfeit all such goods, fabrics, or other articles upon which it shall be found he has failed to affix the proper mark or label: Provided, That for all goods, fabrics, clothing, or other articles manufactured, or in process of manufacture therefrom, required by this Act to be labeled, which were manufactured prior to the passage of this Act and which had passed out of the hands of the manufacturer thereof, and the ingredients or component parts of which are not known by the owner, merchant, or custodian thereof, a label, mark, or tag may be affixed, as provided in this Act, bearing the words "Manufactured prior to the pure-fiber Act, composition not known," which for such fabrics or articles shall be a compliance with this Act.

Sec. 14. That this Act shall take effect on the first day of July, nineteen hundred and four; and it shall be the duty of the Secretary of the Treasury to make all needful rules and regulations for carrying the provisions thereof into effect.

In common justice to the representative who introduced this bill, which subjects the leading industry of the country to such restrictive regulations and places the mark of inferiority on textile fibres that do not come directly from a sheep, it should be assumed that he has satisfied himself as to its objects and the means by which it is to be carried into effect. It is, however, a curious fact that the bill itself simply directs that "it shall be the duty of the Secretary of the Treasury to make all needful rules and regulations for carrying the provisions thereof into effect," and fails to indicate how that is

to be done. It is, therefore, very desirable for the people who are expected to obey the law as well as for the Secretary of the Treasury who is to form "all needful rules" for executing it, that the statesmen who framed it should tell all they know about it. Among the questions that should be answered by the Hon. Charles H. Grosvenor of Ohio are these:

1. Under the definition of "pure wool" in Sec. 1 is it to be understood that all waste products from the manufacture of woolen goods "have not been previously used in the manufacture of fabrics," and are consequently "pure wool?" If so, then wool clips (No. 7), card waste, yarn waste, mill sweepings, and flyings, mill and shear flocks (wool dust) are "pure wool." If, on the other hand, waste products are not classed as pure wool, such material as noils, roving waste (Nos. 3 and 4), and worsted yarn waste (No. 2) are "shoddy." In one case wool dust is "pure wool:" in the other case, worsted roving waste, which is worked over in the finest and most expensive of all wool goods, is "shoddy." Which horn of this dilemma is to be taken by the Secretary of the Treasury?

2. At what stage in the process of manufacture is the "value" of textile materials, referred to in Sec. 1 and 2 of this Grosvenor bill, to be determined? Is wool to be appraised as soon as sheared, cotton as it comes from the field, silk in the form of cocoons, and rags, shoddy and waste as found in the market? If so, then in addition to many grades of cotton and nearly all grades of silk, a very large part of the supply of woolen rags shoddy and waste will be "superior" in value to much of the "pure wool" as it comes from the sheep's back, and will consequently be available for mixture with such wool for the production of "pure fibre" goods under this bill. If the appraisal is to be made at an advanced stage of manufacture, is the cost of labor and supplies, and the loss from waste to be added to the value?

3. What is the meaning of the expression "made in imitation of woolen goods?" What characteristics are to be assumed as being so inherent in woolen goods as to form a standard for the purpose of determining imitations? Is the brilliancy of combed lustre wool, or the dull appearance of carded six months Texas wool to be selected as the woolly appearance that can be imitated in the United States under the Grosvenor shoddy bill only by paying a license fee of fifty dollars per year, and a stamp tax of one-tenth of a cent per pound, besides conforming to the various regulations under penalty of fine and imprisonment?

4. How are the customs officers to determine the "constituent fibres and per centum of each" in imported textile goods? Are such proportions to be determined by chemical analysis? If so, what are the tests for determining the innumerable forms of woolen waste or rag shoddy from "sheep's wool which has not been previously used in the manufacture of any other article?" A satisfactory answer to that question will interest not only the aforesaid customs officers, but also many textile manufacturers who are now laboring under the delusion that no such tests are known.

5. If not to be determined by scientific methods, is the "per centum of each constituent fibre" in imported goods to be guessed at by the customs officers and the goods "marked, labeled or tagged" accordingly?

6. If by guess work, whose guess is to be the standard by which other guesses are to be considered misdemeanors, to be punished by a fine of one thousand to five thousand dollars and imprisonment for six months or a year?

7. Is the manufacture of the fabric now spun, knit and woven by hand without legal restrictions in many parts of the country, notably in the mountains of Tennessee, to be prohibited and are the people engaged in that household industry to be treated as textile moonshiners?

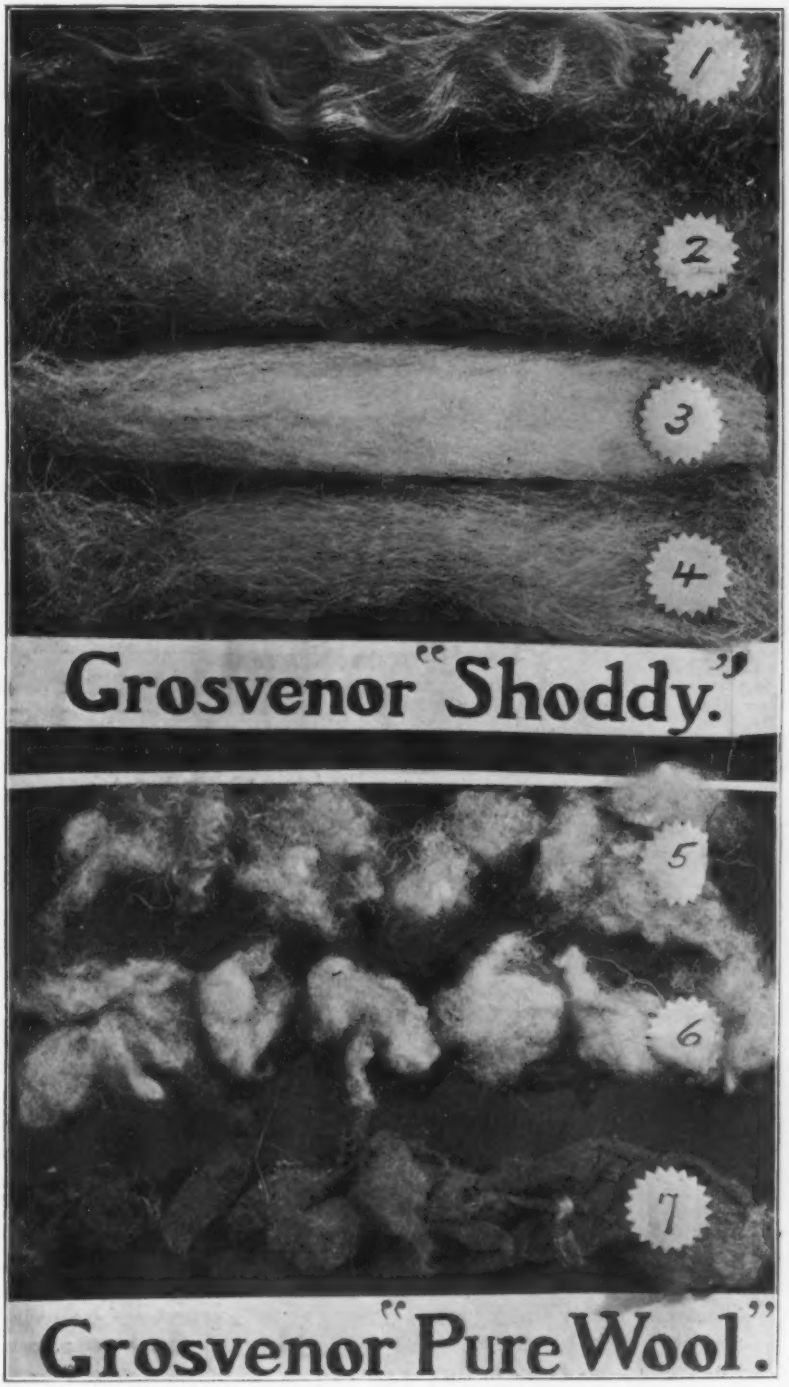
8. How are violations of the sections forbidding the buying, selling, or incorrect "marking" of mixed goods to be detected and proved? Is it to be by guesswork or scientific analysis. If the former, whose guess is to be accepted as sufficient for fining and imprisoning American citizens and confiscating their property? If by analysis, what is the particular method to be employed?

9. The value of textile goods, partly or wholly manufactured, which would have to be labeled "Manufactured prior to the pure-fibre Act, composition not known," would, at a conservative estimate, amount to $900,000,000. Has the Hon. Charles H. Grosvenor estimated the depreciation of this property by being thus cast under the ban of the "pure-fibre Act?" Are the textile manufacturers, manufacturing clothiers, tailors, jobbers, and retailers who would lose by such depreciation to receive compensation from the Government or wool growers?

10. The yearly per capita consumption of clean cotton, wool and wool waste products in the United States is estimated as follows:

Cotton, 27 lbs., of which 26 lbs. is supplied by the domestic cotton planters, who supply an additional 40 lbs. for export.

Wool, 3 1/2 lbs., of which 1 1/2 lbs. is supplied by the domestic wool growers, the other 2 lbs. be-



UNDER THE GROSVENOR BILL.

Cloths made from superior stock, like Nos. 1, 2, 3 or 4 would be mixed or shoddy goods. Cloths made from inferior stock, like 5, 6 or 7 would be pure wool goods.

ing imported in the form of wool or cloth.

Shoddy and waste, 2 1/2 lbs. all being the domestic waste products from partially or wholly manufactured clothing.

The domestic wool growers thus supply 1 1/2 lbs. or one-twentieth of the 33 lbs. of cotton, wool and shoddy, or one-quarter of the 6 lbs. of wool, shoddy and waste required per capita to clothe the people of the United States.

Will the Grosvenor bill result in an increase of the domestic wool clip from 1 1/2 lbs. to 3 1/2 lbs. per capita so that no wool need be imported? Will it increase the wool clip so that the use of shoddy and waste can be materially reduced or abolished? Will it increase the wool clip so as to lessen the demand for cotton of which there is now a shortage?

In other words, is this Grosvenor bill designed to make the domestic wool supply equal the demand, or to increase the income of the wool growers without an increase in the domestic clip?

11. What is the estimated cost of the proposed police surveillance of the textile mills, manufacturing clothiers, tailors, clothing jobbers and retailers throughout the country and the estimated revenue to be derived from Grosvenor license fees and stamp tax?

12. About how much is the cost of "pure wool" and "mixed goods" to be increased by this "Act?"

13. Why should the cost of woolen clothing be increased?

14. Why should the law discriminate in favor of high-priced textile materials, as in Sec. 1 and 2 of the Grosvenor shoddy bill?

15. Why are not utility and a fair price the most desirable qualities of textile fibres?

16. Why should tags be fastened to textile goods to indicate the proportions of new and old wool while machinery is sold without being tagged to show the "per centum" of new and old metal in the castings?

17. Why should the law discriminate against the cotton plant, the silk worm, the rag picker and the Angora goat, and in favor of sheep as producers of textile fibres?

18. Why is not low-priced clothing a benefit to the people?

19. What influence is the introduction or passage of this bill expected to have on the popular vote for its supporters in districts where wool growing is an important industry?

20. How much shoddy is in the Grosvenor "pure-fibre Act?"

The people and particularly the Hon. Leslie M. Shaw, Secretary of the Treasury, have a right to replies to these questions before the Grosvenor bill becomes a law. The framer of this bill must have answered them, to his own satisfaction at least, before the measure was introduced. Can it be possible that such answers are to be withheld so as to make it necessary to appoint the Hon. Chas. H. Grosvenor of Ohio Secretary of the Treasury because he is the only man who knows how to "make all needful rules and regulations for carrying the provisions of the Grosvenor shoddy bill into effect"?

Seasonable Fabrics.

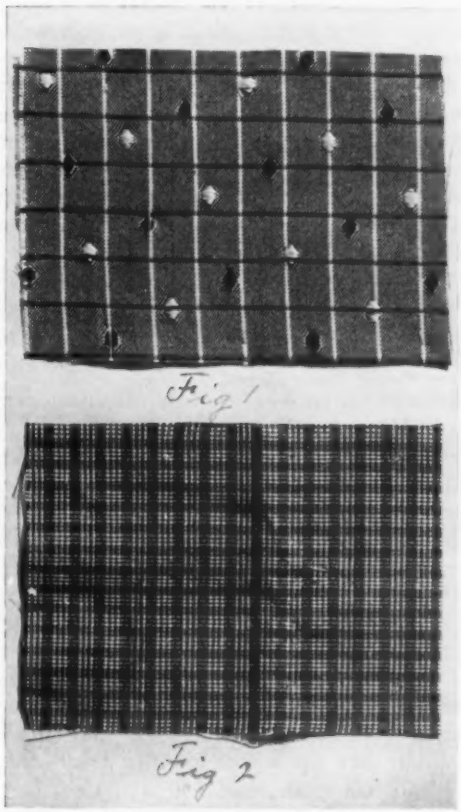
MEN'S WEAR WOOLENS.

During the past few weeks the situation in this division of the market has shown a material improvement; as a result of the more seasonable weather, reports from the retail dealers concerning heavy weights have been more encouraging, and re-orders while not large, have been of sufficient volume to move a good portion of the stock on hand. The principal factor of this improvement has been the increased inquiry for fancy overcoatings which are steadily gaining in popular favor as the season advances. Fancy lines of worsteds are also meeting with better support. The feature of the market has been the opening of the low grade goods by the various selling agents. The American Woolen Company have opened their lines of kerseys and meltons at a reduction of 2 1/2 to 5c. a yard below last year's quotations.

In department 1, division B, are shown all wool melton suitings in 21 oz. weight at $1 to $1.25 instead of $1.05 to $1.27 1/2 last year. The same reduction is shown in melton overcoatings 28 oz. weight range in price from $1.22 1/2 to $1.50; 29 oz. mixed kerseys at $1.35 instead of $1.40; light weight kerseys are quoted at $1.25 as against $1.27 1/2 last year; 21 oz. kerseys are quoted at $1.05 all wool. They are also showing new lines such as 21 oz. cotton carded meltons at 90c.; 21 oz. all wool melton suitings at $1.02 1/2 and

21 oz. all wool melton overcoatings at $1.05 and $1.12 1/2, also a line of manipulated kerseys at 87 1/2c.

Mercerized overcoatings and fancy overcoatings of the Bannockburn order are practically at the same figures as those of a year ago. The higher grade goods will be opened gradually during this month. For Spring delivery fancy suitings are meeting with the best support. Homespuns, cassimeres and cheviots are the most prominent in request.



DRESS GOODS.

No new development worthy of note has transpired in this division; the pre-holiday period is generally given to other purchases than dress goods by most of the consumers, with the result that inactivity is the normal condition existing at this time. The conditions prevailing are termed by the agents as a "dragging market." With the advent of the new year it is more than probable that the present situation will improve, as the retailer will have more leisure to attend to their needs in dress fabrics for Spring.

The drift since the initial purchases were placed has been decidedly towards monotones; with the cutters these have been marked favorites, and just now such goods are the principal factors among the buying that is being done. There has been an increased demand for broadcloths and Venetians and indications point that prunellas and other goods of the smooth panne finish variety will regain their prestige. This does not mean that fancies will be eliminated, only that such goods as Scotch mixtures and tweed effects will not be the entire vogue. The re-orders for mohairs are coming in quite freely and a good deal of enthusiasm is manifested in regard to this fabric by the importers and manufacturers; creams seem to be in the ascendent with black a good second. Sheer fabrics light weight mesh goods such as voiles, and etamines have lost none of their popularity and in some sections zibelines of the better grades are much in request. It was predicted early in the season that fancies would predominate, but this prediction has not been verified; it cannot be said that fancies have gained strength as the season has advanced, but rather they have only maintained their position, while plain goods have made important strides into popular favor.

SILKS AND VELVETS.

It is generally stated among the trade that the conditions are gradually improving and a greater degree of cheerfulness is being exhibited. Better attention is given to fancies by the manufacturers for such purposes as waists and shirt waist suits. Bayedere stripes are shown by most of the houses and mousseline bengaline, a fine brilliant weave poplin is being introduced with some degree of success. For current use prominence is given to crepe de chine and allied fabrics; and for Spring delivery peau de cygne, peau de soie and taffetas receive the best support. Fig. 1 shows a grey ground, black and white hair line checked taffeta, interspersed with seeded dots, this is sold by Cornforth & Marx and made in their Fitchburg mills.

Fig. 2 illustrates a three hair line check made by the same mill. Each of these comes in 19 inch and 27 inch, and the colors include black and white, white and black, navy and white, brown and black and garnet and black. The 19 inch width is sold at 52 1/2c. The same mill is making a very desirable mousseline taffeta which sells at 42 1/2c. and 24 inch crepe de chine in all colors at 55c. For the popular demand these lines represent the best selling fabric in the silk division today. The request for Japanese and Shantungs is marked, which clearly indicates that these will be as much in vogue during the coming Spring season as that of a year ago.

VELVETS.

For current wear velvet has been one of the leading fabrics and orders for fancy velvets as well as velveteen are still being received; a distinct advance has been made in the manufacture of this fabric, noticeably in the production of chiffon velvet; pile goods, however, are classed as fabrics desirable only for the Winter months, and no orders of any importance may be looked for Spring and Summer wear.

PRINTS AND GINGHAMS.

The demand for all classes of cotton goods is of the most careful character, the market is in such an unsatisfactory condition that buyers are in a quandary, whether to buy or not to buy, that is the question that is agitating most of them. Quotations on "domestics" are being changed from day to day, and even then agents state that prices are not on a parity with the raw material. All indications tend in the direction that the better class of ginghams will receive more attention from the consumers this coming Spring than any other previous season, and the lines shown by the various manufacturers, are more comprehensive and varied in order to satisfy this demand. Such lines of gingham as Toile du Nord, Red Seal Zephyrs, A. F. C., and Everett Classics are completely sold up and samples withdrawn.

Plaid dress ginghams made principally by the Southern mills are being taken in fairly large quantities.

Notwithstanding the fact that the print market is in an exceedingly strong position, there has been a spirited contest in Turkey red prints. It does not seem clear how the fight started. From 4 3/4 cents less 5 and 2 1/2 cents the prices were successively cut until Merrimack Turkey reds were quoted at 4 1/4 cents net and the Garner and Allen Turkey Reds at 4 1/8 cents net.

LININGS.

The conditions governing cotton linings have developed material improvement and prices on all lines have been advanced from 1/4 to 3/4 cents per yard. Manufacturing clothiers have placed fairly large orders for cotton warp Italians, mohair serges, alpacas and allied goods; in addition road men are sending in substantial orders for percalines and silesias. The trend is toward a better class fabric than generally sold hitherto. Mercerized finished goods are meeting with good support and the market is strong. Quotations have an upward tendency.

TEXTILE TRADE WITH CUBA.

Havana, Cuba, Dec. 20, 1903.

Editor Textile World Record:

Representatives of English manufacturers are in Havana as is usual at this season, but they are booking very little business as yet. Cuban jobbers expect to divert a large portion of their business to the United States. Whether this will be done or not, depends greatly on the American manufacturer. Naturally there will always be some cotton fabrics imported into Cuba from England, as there are today into the United States, but the treaty at least will afford to American manufacturers an opportunity to secure the greater bulk of the business, if they make anything like the effort for the trade that England has made, and will doubtless continue to make.

The decided difference between the class of cotton goods now consumed in Cuba, and that manufactured in the States for home consumption, will necessitate the progress of American goods being slower than would otherwise be the case. The English and Spanish manufacturers seem to have studied especial means for "skimping" goods for this market. As an instance, the Havana jobber claims that they are compelled to have goods

in narrow widths. They insist that the average consumer, through ignorance, will pay no more for piece goods 27 inches wide than they will for 24 inches width, and they trade on what they claim is the consumer's disregard of real dimensions, to make either lower prices or greater profits.

Furthermore, it is a fact that in Cuba goods are not priced at retail in odd cents, and a yard of cloth will retail at 5, 10, 15, or 20, with no divisions between these prices. The currency used for small retail purchases is Spanish silver, 10 cents of which is worth about 7 cents in U. S. currency. The Spanish merchants claim that they must have their goods made in such dimensions and at such price, that when the duties are paid, they can figure out a price to the retailer that will enable the latter to make his uniform profit at uniform prices. To make the widths desired at the lowest possible prices, the English manufacturers have adopted a system of "splitting" their cloths. Two widths are woven together and then split lengthwise, resulting in two pieces, each of 24 inches width. This is done in medium and low priced goods, and the edge where the split is made is left raw, having no selvage.

English goods coming to this market generally contain considerable filler, and so far from being considered a disadvantage, it is desired by this trade, since they prefer the hard smooth finish that results.

English manufacturers have been very ready to make goods of such weight, dimensions, and number of threads as meet the requirements of the trade and pass the customs at the lowest rate of duty that is possible for cloth of any given class.

It is a problem how far American manufacturers will have to conform to these methods of manufacture. There are those who believe that it will be absolutely necessary at all times; there are others who contend that if American manufacturers will but reasonably conform to the present requirements the general superiority of American goods of the middle and cheaper grades will not be long in gaining recognition, and that the day will not be far distant, when fabrics made to produce the greatest wear, in dimensions that afford the consumer the greatest economy in the end, will be demanded in preference to European goods that are adulterated in quality, and skimped in dimensions. From careful observation and comparison we are convinced that the latter theory is correct, and it shall be our object, with the assistance of those of the manufacturers who place their samples in our hands, to induce several of the leading jobbers to make a specialty of exploiting American fabrics, and we have no doubt of the result.

The Havana jobbers are anxious to place their orders in the States, if they can get the attention and consideration from our manufacturers which they have long enjoyed from those abroad, and those manufacturers who take sufficient interest in this trade at this time are assured that they will make a market of great value for their goods.

Frank G. Robins & Co.

THE CUBAN MARKET FOR COTTON GOODS.

The ratification of the Cuban reciprocity treaty which is now in force makes the Cuban market for cotton goods a subject of especial interest to American manufacturers. This market has been almost completely in the control of the European manufacturers, but the reduction of the duties on cotton goods imported from the United States has led many to believe that American manufacturers can now find an outlet in Cuba for large quantities of cotton fabrics.

In another part of this issue is a letter from a Havana firm in which they refer to the popular width and finish of goods in Cuba. Doubtless our manufacturers who are interested in developing their export trade with Cuba will find valuable hints in this letter. We have received from the same firm a number of samples of English fabrics that have been sold in large quantities in the Cuban market and will be pleased to show them to any one interested who will call at our Boston office. One of these fabrics is a cheap gingham shown in the illustration. The price at Manchester was 1 9/16 pence or 3 1/8 cents per yard, 24 inches wide. The goods were sold at this price some time ago when cotton was much lower than at present and doubt-

less the same goods are considerably higher today. We submitted these samples to a number of leading American merchants in New York and they were unanimous in saying that it would be impossible to duplicate the fabric in the American market even with middling uplands at 10 or 11 cents per pound. In order to make a comparison between the American and English fabrics we secured samples of the cheapest American gingham to be found in this market and made an analysis of it and of the English fabric with the following results:

ENGLISH GINGHAMS.

3 1/8 cents per yard, 24 inches wide, f. o. b. Manchester.
8 3/4 yards, 24 inches wide per pound.
Warp, 59 threads per inch, 1/35's cotton.
Filling, 50 threads per inch, 1/39's cotton.

The warp was found to contain 29 per cent. and the filling 20 6/10 per cent. of filler, the average for the whole fabric being 26 per cent. There are consequently 11.8 yards of the cloth per pound of clean cotton. The counts indicate the size of the yarn without the filler.

AMERICAN GINGHAM: THE LOWEST PRICED FABRIC TO BE FOUND.

4 3/4 cents per yard, 26 inches wide.
6.73 yards, 26 inches wide per pound.
Warp, 53 threads per inch, 1/24's cotton.
Filling, 43 threads per inch, 1/21's cotton.

The warp was found to contain 13 2/10 per cent. and the filling 8 6/10 per cent. of filler. The average for the whole fabric was 11 per cent. There are consequently 11.56 yards of cloth 26 inches wide per pound of clean cotton. The count indicate the size of the yarn without the filler.

A comparison of these two analyses shows that the English fabric contains a much larger percentage of weighting material than is found in the American goods. The former shows 26 per cent., the latter 11 per cent. The 11.8 yards of English gingham per pound of clean cotton would, at 3 1/8 cents per pound, amount to $0.368, the English selling price of one pound of clean cotton cloth. The 7.56 yards of American gingham per pound of clean cotton would, at 4 3/4 cents per pound, amount to $0.359 for the American selling price of one pound of clean cotton cloth. Thus it is seen that even with cotton at a much lower figure the English manufacturer actually received more per pound of clean cotton cloth than is obtained by the American manufacturer. The English fabric is more closely set, having six threads more of warp and seven threads more of filling per inch. The yarn is also much finer. The warp and filling in the English fabric are twisted in opposite directions, while in the American fabric they are twisted in the same direction. This probably gives the English fabric a slightly smoother appearance. This difference is still further increased by the weighting material which gives a gloss to the English fabric, an appearance which our Cuban correspondent states is very desirable with his trade.

NEW ENGLISH GINGHAM.

While our analysis indicates that under the preferences afforded by the reciprocity treaty American manufacturers would be able to compete with English goods in the Cuban market, the principal difficulty that our manufacturers would meet would doubtless be that of changing their fabrics and methods of manufacturing to suit a market, which is not likely to afford a large outlet for goods at the start.

The Textile World Record's Annual Report of Mill Construction for 1903.

Three hundred and thirty-four new textile mills were completed and put in operation in the United States in 1903. This, with the exception of 1900 when 400 mills were erected, is the largest annual total on record, and reflects the general prosperity of the country for the past two years. The new mills for 1903 are distributed among the different branches of the industry in practically the same proportion as in 1902. Each branch, cotton, woolen, silk, knitting, and miscellaneous, shows an increase in number. The following table gives the number of new textile mills in each branch of the industry for the past seven years:

COMPARISON OF NEW MILL CONSTRUCTION FOR PAST SEVEN YEARS.

	1903	1902	1901	1900	1899	1898	1897
otton ...	81	68	59	171	91	34	49
Woolen	65	46	53	48	49	25	53
Knitting	105	82	93	109	57	46	71
Silk	58	45	29	43	32	19	43
Miscellaneous	25	21	21	29	16	10	14
Totals	334	262	255	400	245	134	230

Of the 81 new cotton mills 40 were located in the South and 41 in the North. Although the mills are about equally divided between the North and South, the spinning capacity of the Southern mills is more than double that of the Northern mills. The new Southern spindles number 281,752 as compared with 135,000 new spindles in the North. Many of the new mills, especially in the North, were equipped without spindles, for weaving only, and for the production of batting and similar fabrics that do not require the spinning process. For this reason the number of mills is relatively larger than the number of spindles. A marked feature of the cotton mill construction in 1903 was the large number erected for the manufacture of yarn and batting from cotton waste.

The tendency for mills to concentrate in districts where manufacturing is already established is shown in 1903 by the fact that Georgia, North Carolina, South Carolina and Alabama are in the lead in cotton mill construction in the South. The total number

NEW COTTON MILLS IN 1903

South	No.	Spindles	Looms
Alabama	3	26,0 0	800
Arkansas	1	.....	....
Georgia	6	80,400	2,500
Louisiana	1	25,000	1,000
Mississippi	3	5,000	210
North Carolina	14	56,936	1,020
South Carolina	10	45,416	661
Virginia	2	43,000	1,600
Totals	40	281,752	7,791
North			
Connecticut	2	.....	....
Maine	1	.....	4
Massachusetts	11	95,000	809
New Hampshire	1	.....	....
New Jersey	1	.....	....
New York	4	.....	....
Pennsylvania	11	.....	82
Rhode Island	10	40,000	1,117
Totals	41	135,000	2,012

(416,752) of cotton spindles installed last year is below the average for the past seven years. Increasing the number of mills too rapidly is often a source of danger to the industry by disturbing the balance of supply and demand in the markets for raw material and finished goods. Cotton mill construction in the last few years has doubtless been in excess of the increased demand for manufactured goods, and this has contributed in large measure to bring about the present abnormal condition in the cotton trade. The new mills in excess of the demand for goods have reduced the supply of raw material and piled up manufactured goods so that today the selling price of raw cotton is far above the level warranted by the selling price of manufactured goods. For this reason the moderate total for 1903 should be a cause for congratulation.

More new woolen mills were completed in 1903 than in any of the previous eight years

COMPARISON OF SPINDLES IN NEW MILLS (COTTON) FOR PAST SEVEN YEARS.

	1903	1902	1901	1900	1899	1898	1897
New England	135,000	347,320	30,000	185,700	315,000	.....	35,840
Southern States	281,752	490,256	259,360	1,109,584	669,970	158,750	256,780
Middle and Western States	.....	25,000	2,064	11,500	78,000	7,000	4,000
Totals	416,752	862,576	291,424	1,306,784	1,062,970	165,750	296,620

although their aggregate capacity is probably lower than in any of the previous years. The large total is due to the many small mills erected in Pennsylvania, there being 22 established there in 1903. New England claims 28 of the new woolen mills, while but 7 are credited to the Western and Southern states. The figures in this branch of the industry certainly do not support the prediction that

NEW WOOLEN MILLS.

	1903	1902	1901	1900
New England				
Maine	6			
New Hampshire	3			
Massachusetts	11			
Rhode Island	6			
Connecticut	2			
	— 28	19	24	14
Middle States				
New Jersey	5			
New York	3			
Pennsylvania	22			
	— 30	13	13	23
Western States				
California	1			
Indiana	1			
Wisconsin	1			
	— 3	11	11	7
Southern States				
Georgia	2			
North Carolina	1			
West Virginia	1			
	— 4	3	5	4
Totals	65	46	53	48

was freely made a few years ago of the eventual consolidation of the woolen industry under the management of a few large corporations.

Of the 105 new knitting mills 60 per cent. are found in the Middle states, and 20 per cent. in the Southern states. The facilities afforded by an industry already established

NEW KNITTING MILLS.

	1903	1902	1901	1900
New England				
New Hampshire	1			
Vermont	1			
Massachusetts	4			
	— 6	5	6	8
Middle States				
New York	18			
New Jersey	3			
Pennsylvania	41			
Delaware	1			
	— 63	50	42	53
Western States				
Illinois	1			
Michigan	4			
Oregon	1			
Utah	1			
Washington	1			
Wisconsin	4			
	— 12	9	12	9
Southern States				
Alabama	2			
Georgia	4			
Mississippi	1			
North Carolina	6			
South Carolina	1			
Tennessee	4			
Texas	1			
Virginia	4			
West Virginia	1			
	— 24	18	33	39
Totals	105	82	93	109

accounts for the large number of knitting mills erected in the Middle states, while the well-known advantages of the South for manufacturing at a low cost explains the relatively large number of new mills built in that section.

NEW MISCELLANEOUS MILLS.

	1903	1902	1901	1900
Connecticut				
Dyeing and mercerizing	1			
Massachusetts				
Dyeing and bleaching	1			
Dyeing and finishing	1			
Linen goods	1			
Ropes	1			
	— 4			
New Jersey				
Bleaching	1			
Silk dyeing	2			
	— 3			
New York				
Dyeing and bleaching	1			
Pennsylvania				
Bleaching and finishing	3			
Dyeing	5			
Linen yarn	1			
	— 9			
Rhode Island				
Bleaching and finishing	3			
Dyeing	2			
Winding yarn	1			
	— 6			
Virginia				
Dyeing	1			
Totals	25	21	21	29

Of the 58 new silk mills erected last year all but 6 are located in Pennsylvania, New Jersey and New York. The relatively large number, 23, located in Pennsylvania indicates

NEW SILK MILLS.

	1903	1902	1901	1900
Connecticut				
Broad silk	1			
Massachusetts				
Narrow fabrics	1			
New Hampshire				
Velvets	1			
New Jersey				
Broad silks	6			
Narrow fabrics	3			
Sewing silk	1			
Silk throwing	5			
	— 15			
New York				
Broad silks	5			
Narrow fabrics	7			
Silk gloves	1			
Silk throwing	1			
	— 14			
Pennsylvania				
Broad silks	9			
Narrow fabrics	5			
Silk finishing	1			
Silk yarn	1			
Silk throwing	7			
	— 23			
Rhode Island				
Broad silks	1			
Sewing silk	1			
	— 2			
Virginia				
Silk throwing	1			
Totals	58	45	29	42

the well-known tendency of the silk manufacturers to seek a location for their mills where a larger supply of labor, and a not too great distance from the silk manufacturing and selling centres will enable them to conduct their business under more favorable conditions.

No special feature is disclosed by the character of the miscellaneous mills erected in 1903, but the growth in the number of those established is in healthy proportion to the increase in other branches of the textile industry.

The statistics of mills projected in 1903 reflects the general conservatism prevailing throughout the country, there being but 38 as compared with 50 in 1902. For reasons already referred to in speaking of the cotton industry this small total is a cause for congratulation and will result in a firmer foundation for a future growth based on an increase in the demand for goods.

MILLS PROJECTED IN 1903.

	South	N. E.	Middle	West	Total
Cotton	13	1	4	.	18
Woolen	.	1	.	4	5
Knitting	5	.	3	3	11
Silk	1	.	3	.	4
Totals	19	2	10	7	38

MILLS PROJECTED IN 1903 AS COMPARED WITH FOUR PRECEDING YEARS.

	1903	1902	1901	1900	1899
Cotton	18	29	40	96	98
Woolen	5	7	18	7	6
Knitting	11	9	28	19	12
Silk	4	5	9	6	2
Totals	38	50	95	128	113

New Mill Construction During 1903.

EXPLANATION OF ABBREVIATIONS: 12/03=Expect to start December, 1903, etc.; S=Steam; W=Water Power; E=Electricity; D=Dye House.

NEW COTTON MILLS	Spindles	Looms
ALABAMA.		
Huntsville. Madison Mfg. Co. $300,000. Capt. Milton Humes, president; C. C. Harris, treasurer; W. F. Knight, general manager; W. B. Knight, superintendent. Twills, satteens and print cloths. (S)	16,000	500
Livingston. Livingston Mfg. Co. $50,000. F. M. Tarth, president; T. L. Smith, treasurer and general manager; J. B. Barnes, superintendent. Cotton filled goods. Sell direct. (S) (7/03)	..	..
Siluria. Siluria Cotton Mill Co. $250,000. T. C. Thompson, president; Brevard D. Miller, treasurer and agent. Print cloths, 28" 64x64, 28 and 38 yarn. (S & E) (9/03)	10,000	300
ARKANSAS.		
Mammoth Spring. Steele's Cotton Mills. Incorporated with capital $150,000 to operate plant formerly run as Mammoth Spring Cotton Mills. Robert L. Steele, president; G. C. Burford, treasurer, and P. B. Hynson, secretary	..	..
CONNECTICUT.		
Hawleyville. New England Lace Curtain Co., John Drew, proprietor. Lace curtains	..	..
Putnam. Kedzie Mfg. Co. D. S. Curtis, president and general manager; Mrs. D. S. Curtis, treasurer; M. A. Darbie, vice-president and superintendent. Handkerchiefs and novelties	..	..
GEORGIA.		
Atlanta. Fulton Bag & Cotton Mills. New mill building, 260x150 feet, four stories. Sheetings, shirtings, etc. (1/04)	50,000	1,500
Cartersville. American Pad & Textile Co. (branch of plant at Greenfield, O.) Pads, textiles and materials for pads. (Under construction Nov. '03)	..	..
Macon. Wolff Cotton Waste & Linter Co. $5,000. Edward Wolff, president and treasurer. Cotton felt, batting and waste products. Sell direct. (E) New building erected. One opener, cleaner and extractor. (1/04)	..	..
Marietta. Standard Press Cloth Co. H. M. Sessions, president and treasurer; E. J. Powers, vice-president; Thomas Keenen, secretary; A. F. Parker, superintendent. Pressed cloth (used by cotton seed oil mills). Expect to start up in Jan. '04.	..	..
Neal. Neal Mfg. & Power Co., The. $50,000. H. B. Neal, president and treasurer; Andrew J. Kelley, agent. Sheetings. (E) Under construction. (Will also develop and sell water power in vicinity). Expect to start 5/04	30,400	1,000
Rome. Floyd Cotton Mills Co. $70,000. T. W. Lipscombe, manager. (Operate Rome Cotton Factory)	..	..
LOUISIANA.		
New Orleans. Lane Mills. New buildings erected, main mill 300x180 feet; two stories; brick. (E). Will install about	25,000	1,000
MAINE.		
Westbrook. Westbrook Hammock Co. $5,000. Nathan A. Brown, president; J. W. Marr, treasurer; Richard Goodall, manager. Hammocks. Sell direct. (F)	..	4
MASSACHUSETTS.		
Easthampton. Smith, Fergus. Elastic Webbing	..	..
Fall River. Ancona Co. New company organized to operate plant of the Slade Mills	..	..
Fall River. Puritan Mills. Absorbent cotton. William J. Dunn interested	..	..
Fall River. Watuppa Mills. William B. Edgar, treasurer. Fancy cotton and silk goods. Main building to be 212x156 feet, 2 stories, with saw tooth roof. About 600 looms	..	..

Holyoke. Bullard Thread Co. $20,000. A. A. Coburn, president; W. H. Bullard, treasurer. Threads 30 to 140. (Purchased plant of the Cressy Thread Co.) ....

Methuen. Tekcips Manufacturing Co. Mr. Wurgler, manager. Ginghams. (In building formerly occupied by Spicket Falls Bleachery.) 9

New Bedford. Manomet Mills. $100,000. Edgar Harding, president; A. C. Gardner, treasurer; Chas. M. Holmes, agent and buyer; E. M. Cushman, superintendent. Combed hosiery yarns (mule spun). Harding, Whitman & Co., 78 Chauncy St., Boston, s. agts. (S) (4/04) 55,000 ..

New Bedford. Soule Mill. Addition 352x110 feet brick, built to the mill. Installed.. 40,000 800
Gives plant total of 45,000 mule and 45,000 ring spindles and 2,000 looms. (1/04)

No. Attleboro. Standard Braid Co. Charles S. Davol, treasurer; John Clitheroe, superintendent. Cotton and worsted braids. Sell direct. (S & W). (Formerly Gold Medal Braid Mill.)..... .. ..

Springfield. Bay State Thread Works. $75,000 Edw. L. Smith, president; M. C. Birnie, treasurer; E. R. Dyer, superintendent. Cotton thread for manufacturers, spools, tubes and cones. E. L. Smith, buyer. (Bl., D. & F.) (W)..... .. ..

Westfield. Columbia Thread Co. $15,000. Albert M. Schappa, president; Robert Gowdy, secretary and treasurer; Karl L. Teubner, manager. Thread converters, also dyers cotton yarns, tapes, etc. (Capacity 5,000 lbs. daily.) Sell direct ....

MISSISSIPPI.

Magnolia. Mississippi Textile Novelty Co. Sam R. Stevens, secretary and treasurer. Fancy shirtings, dress goods and novelties. (Dobby looms.)..... .. 25

Starkville. Stone, John M., Cotton Mills. $125,000. Arthur Whittam, president; W. W. Scales, Jr., secretary and treasurer. Cotton yarn and sheetings. Hanna & Co., N. Y., s. agts. (S) (1/03)..... 5,000 160

MISSOURI.

Jefferson. State Penitentiary. New binder plant established, capacity about 10,000 lbs. daily. (Under construction—expect to start up soon after Feb. 1st)..... .. ..

NEW HAMPSHIRE.

Claremont. Royal Textile Co. D. G. Sunderland, manager. Shoe and corset laces ....

NEW JERSEY.

Braddock (P. O. address, Cedar Brook). Bailey-Steel Mfg. Co. (Frank Bailey and J. Steel). Novelty upholstery goods. New mill building, 70x25 feet, 2 1/2 stories, with engine and boiler house, will be built. (Expect to start operations in Sept.) ....

NEW YORK.

Cohoes. Peerless Fibre Co. $75,000. Frederick Fleischman, president. Cotton bats and shoddy. (Succeed Carroll Mfg. Co.) ....

Gouverneur. International Lace Mfg. Co. $500,000. J. S. Lesser, president; B. G. Parker (511 Broadway, N. Y.), treasurer. Lace curtains and laces. Sell direct. J. S. Lesser & Co., N. Y. (S & E)..... .. ..

Kingston. Brill Lace Works. I. Brill & Co. Lace curtains. Sell direct, 434 B'way, New York. (E) (F)..... .. ..

Utica. Foster-Allison Co. $20,000. W. S. Foster, president; C. G. Lowery, treasurer; G. F. Allison, secretary; C. E. Allen, manager. Mattress Felts. 1 picker, 3 garnetts, 1 cleaner. (S)..... .. ..

NORTH CAROLINA.

Bessemer City. Whetstone Cotton Co. $100,000. S. J. Durham, president and treasurer; L. W. Buck, vice-president and superintendent. Fine damask. Brander-Walsh Co., N. Y., s. agts. (S) (10/03) 40

Burlington. Gant, John Q., Mfg. Co. Glen Raven Cotton Mills. Cotton fabrics. (S) (5/03) 3,000 100

Charlotte. Continental Mfg. Co. $150,000. Purchased old Victor Cotton Mills and operate same. Installed some new machinery, including cards, drawing frames, lappers, etc. ....

Charlotte. Fidelity Mfg. Co. $500,000 (authorized). A. P. Rhyne, president; Thomas L. Lillard, treasurer; Thomas A. Davis and A. Mitall, superintendents. 20/2 ply to 26/2 ply skeins and warps. 8,000 spindles. (Purchased Ada Mfg. Co.'s plant.) (11/03)..... .. ..

Charlotte. Hoskins Mills, Inc. E. A. Smith, president and treasurer; H. H. Boyd, superintendent. Fine sheetings. (Under construction.) (Start spring, '04) 25,000 580

Charlotte. Mechlenburg Cotton Mills. $100,000. Wm. C. Coleman (Whitmire, S. C.), president; R. L. Tate, treasurer. Coarse yarn from cotton waste. 16 sets. (1/04) ....

Dallas. Morowebb Cotton Mill. $100,000. T. M. Fayssonx, president; J. D. Moore, treasurer and agent; J. O. White, superintendent. Yarns. Chas. J. Webb & Co., s. agts. (1/04)..... 5,000 ..

Hickory. Ivey Mills, The. $75,000. A. A. Shuford, president; G. F. Ivey, treasurer and agent. Fine sateens. (S) 8/03 4,560 200

Jonesboro. Clark Mfg. Co. $100,000. David Clark (Charlotte), president; W. A. Graham Clark (Jonesboro), treasurer. Denims and plaids. Sell direct. W. A. Graham Clark, buyer. (S) (D) 10/03 .. 100

Laurel Bluff. Steele Bros. Co. Incorporated with capital stock $21,000. Purchased Laurel Bluff Cotton Mills. A. J. Thompson, proprietor. ....

Lincolnton. Piedmont Cotton Mills. $50,000. R. S. Reinhardt, president and manager; A. J. Bayley, treasurer; W. McLoud, superintendent. (Operate plant formerly known as Delima Cotton & Woolen Mills). Carded hosiery yarns, 8s and 8/2 ply ....

Lincolnton. Wampum Cotton Mills. $160,000. J. A. Abernathy, president; R. S. Abernathy, treasurer. Yarns, numbers 50s to 80s ply, Egyptian and Peeler cotton. J. A. Abernathy, buyer. (S) (10/03) ..... 10,000 ..

Spray. Rhode Island Co. $125,000. B. Frank Mebane, president; W. R. Walker, treasurer; L. McRay, superintendent. Yarns, 30s. J. H. Parvin & Co., Phila., s. agts. (S) (2/04)..... 5,376 ..

Statesville. Bloomfield Mfg. Co. $100,000. N. B. Mills, president; H. A. Yount, secretary and treasurer; A. B. Saunders, manager. Combed Egyptian yarns, 60s to 80s ..... 4,000 ..

PENNSYLVANIA.

Philadelphia. Bennett, Charles B. 10th St. and Germantown Ave. Fine figured velours with mercerized cotton yarns 12

Philadelphia. Davenport, Thomas, 2627 Mascher St. Rope portieres. 1 spooling frame; 1 twister. Sells direct. (Buy silkoline and cotton yarns) ....

Philadelphia. Delta Spinning Co. Incorporated. Operate Wingohocking Mills, Frankford. Fine combed Egyptian yarns. New machinery installed and an electric light plant..... .. ..

Philadelphia. Goldthorp, H. In Ontario Mills, 1738 North 2d St., above Columbia Ave. Cotton and silk draperies. Phila. office 714 Hale Bldg., 12th and Filbert Sts. 20

Philadelphia. Hoffman, DeWitt & McDonough. New concern formed to take over plant of the Hoffman Manufacturing Co. Erected new mill at Cottman and G Sts., 150x30 feet, one story and basement. Operate 18 looms on high

grade tapes, webbings and stay bindings. Expect to have about 30 looms in operation within short time ....

Philadelphia. Knecht-Mellon Co., Ltd., 1729 Phillip St. Cotton and silk fabrics, narrow goods. (3/03) 16

Philadelphia. Leigh, Philip, Jr. Dale Mill, Gillingham St. Bureau scarfs and covers for stands. (Will instal few more looms) 2

Philadelphia. Lindley Mfg. Co. Richard Voit, proprietor, 2627 Mutter St. Summer curtains and gauze cotton goods, also silk curtains. Sell direct 4

Philadelphia. Metzger, William, 1009 Marshall St. Horse nets and mesh knit goods. (Buy worsted and cotton yarns and twines) 7

Philadelphia. Stern & Bond, Waterloo and York Sts. Edwin L. Taynton, superintendent. Gimps. 30 machines. (Office 1033 Chestnut St.) ....

Philadelphia. Turner, J., 1414 N. 9th St. John Mair, superintendent. Haircloth. Sell direct 10

Philadelphia. Whiteley & Collier, 62d St. and Girard Ave. Curtain and drapery material. (S) 11

RHODE ISLAND.

Auburn. Auburn Braiding Co. Earl A. Potter and T. W. Cole. Elastic corset laces, Vienna ovals and fancy braids. 80 braiders. (S) (Buy 40/2 ply yarn) ....

Central Falls. Harrison, Wm. W. Fancy cottons 2

North Smithfield. Blackstone Mfg. Co. (Blackstone, Mass.) New building, 500x125 feet, 4 stories. (Under construction.) Will equip same with about 40,000 ring spindles and 1,000 (Northrop) looms 40,000 1,000

Pawtucket. Blackstone Webbing Co. $50,000. Eaton Cliff, president; Joseph L. Bodell, treasurer; Wm. J. Mason, agent and superintendent. Narrow fabrics, superfine tapes, shoe webs and stay binding. J. L. Bodell, buyer yarns; W. J. Mason, supplies. (S) (9/03) 35

Pawtucket. Hays Textile Co. Fred'k B. Hays, treasurer and agent. Fine cotton goods and novelties. (Buy yarns) 50

Pawtucket. Royal Textile Co. $5,000. D. G. Sutherland, president; A. T. Parker, treasurer; J. M. Cann, secretary; F. A. Whiting, superintendent. Cotton braids; 25 braiders. (G) Sell direct ....

Providence. Howard Braiding Co., 7 Eddy St. Braids and shoe laces. (Use 26/1, 30/1, 36/2 and 40/2 yarns) ....

Providence. Narragansett Braiding Co. $20,000. Daniel M. Mowry, president; Robt. B. Chambers, treasurer. Shoe laces. (Use 30/1 yarn.) Sell direct. D. M. Mowry, buyer. (8/03) ....

Washington. Washington Mfg. Co. J. Flanagan & Co. Absorbent cotton linen; cop bleaching. Sell direct. (S) (D) (9/03) ....

Woonsocket. Brindle Bros. Robert Brindle, president; Thomas Brindle, agent and superintendent. Narrow fabrics, Battenburg lace, feather edge tapes, also webbing in silk and cotton. Sell direct. (S) 7/03 30

SOUTH CAROLINA.

Anderson. Coneross Yarn Mill. Anderson Phosphate & Oil Co. Installed machinery for making rope and twine, using linters from various oil mills; also yarns. 12/03 ....

Anderson. Toxaway Mills. $225,000. D. P. McBrayer, president and treasurer. Print cloths. Woodward, Baldwin & Co., s. agts. 10/03 ..... 15,000 336

Central. Issaqueena Mill. $200,000. D. K. Norris, president and treasurer. Print cloths. (Under construction) 10,000 325

Columbia. Keenan Yarn Mills, The. $60,000. W. J. Keenan, president and treasurer. Cotton waste yarns; 3's to 8's, single and double mule spun, on woolen principal. (Under construction.) 6/04.. .. ..

Dillon. Maple Cotton Mills. $100,000. Wm. M. Homer, president and treasurer; G. D. Barlow, superintendent. Hosiery yarns. Sell direct. (S) (Expect to start Oct. or Nov.) ..... 7,296 ..

Greenville. McGee Manufacturing Co. $100,000. Henry P. McGee, president and treasurer; John F. Tibbetts, superintendent. Cotton waste yarn, mule spun, No. 4 to 8. Sell direct. (S) 8 sets cards. 8/03 ..... 5,000 ..

Goldville. Banna Mills. $100,000. Incorporated to operate Goldville Cotton Mills. Geo. Johnston, president; L. W. Blalock, vice-president and treasurer ....

Greenwood. Greenwood Cotton Mills. Mill No. 2. (Under construction) ....

Hamer. Hamer Cotton Mills. $100,000. Wm. M. Hamer, president and treasurer. Egyptian yarn. Sell direct ..... 5,000 ..

Pendleton. Pendleton Cotton Mill. $65,000. J. J. Sitton, president and treasurer. Yarns, 20s to 30s. Jos. E. Mitchell & Co., Phila., s. agts. (S) (Under construction Jan., 1904) ..... 3,120 ..

VIRGINIA.

Danville. Dan River Power & Mfg. Co. R. A. Schoolfield, treasurer. Cotton goods. (Under construction) 43,000 1,600

Petersburg. Chesterfield Mfg. Co. Incorporated capital stock $46,000. J. F. Taylor (Kinston, N. C.), president and treasurer; J. W. Block, superintendent. Hosiery and carpet yarns. 5,000 spindles. (Purchased Quinn Mfg. Co.'s plant) ....

NEW WOOLEN MILLS

	No. Sets & Width Cds.	Looms

CALIFORNIA.

Los Angeles. Dolge, Alfred Mfg. Co. (P. O. address Box 184.) $500,000. Alfred Dolge, president; H. W. O. Melvenz, treasurer; Wm. T. Noble, secretary. Felts of all kinds. Sell direct. (E) (D) (Mill at Dolgeville.) (Expect to start up in about six months from Oct., '03).. 6 ..

CONNECTICUT.

Bridgeport. Owyhee Mills. E. E. Kip, president; Chas. F. Stead, treasurer. Woolens and worsteds. G. Delchen, with W. Stursberg, Schell & Co., s. agt. (Branch department of the Salt's Textile Mfg. Co.) 100

Killingly. Assawaga Co. $75,000. David Gordon, president; F. S. Jerome, treasurer; Angus Park, agent; W. F. Shaw, superintendent. Organized to operate plant of the Dayville Woolen Co. ....

GEORGIA.

Athens. Southern Mfg. Co. $50,000. Asbury H. Hodgson, president; David F. Miller, treasurer; Wm. Dootson, superintendent. Yarns (from cotton mill waste) 1s to 8s single and plied; cotton batting for mattress and comfortable trade. E. H. Hamilton & Co., N. Y., and Goodin, Weaver, Reid & Co., Cincinnati, s. agts. 3 garnett machines; 1,780 mule spindles. (Expect to add another 4 set plant.) (E) 6/03 ..... 4 ..

Atlanta. Atlanta Wool Extract Co. K. Koplin, proprietor; H. S. Sheard, superintendent. Carbonize wool rags and mattress stock. Sell direct. (D) (S & E) 2/03 ....

INDIANA.

South Bend. South Bend Shoddy Co. John M. Caulfield, manager; Herman Worm, superintendent. Wool shoddy (capacity, 3,000 lbs. in 24 hours). (W) Sell direct. J. M. Caulfield, buyer ....

MAINE.

Dexter. Dunbarton Woolen Mills. $75,000. Incorporated to operate the Stone Mill. An entirely new dyehouse built ....

East Madison. Somerset Worsted Mills. $100,000. John C. Griffin, president; Edwin Gledhill, treasurer; Ralph Gledhill, manager. Worsteds, men's wear. 20 looms. (S & W) (Leased mill from Lakeside Worsted Mills Co.) 11/03 ....

Oakland. Brown Woolen Co. $10,000. Wm. Harvey, president; Jas. E. Harvey, treasurer. Mill wastes for other mills. Also spin yarns common sizes or runs. Purchased plant at Readfield and moved here. (Contemplate building a spinning room and adding one more set yarn cards.) ....

Springvale. Jagger Bros. (Formerly at Shickshinny, Pa.) Operate Mousam River Mill on worsted, mohair and alpaca yarns, all sizes ....

Readfield. Readfield Woolen Mills. Timothy Ryan, treasurer; Thos. Fallon, manager. Carding, spinning, weaving and dressing—commission work. (Formerly Wm. Harvey & Sons' mill) ....

West Buxton. Darling, Newton. Leased plant formerly operated by Marble & Martin ....

MASSACHUSETTS.

Barre. Barre Wool Combing Co., Ltd. $500,000. Frank Edwards (Newton), president and treasurer. Tops ....

Conway. Delabarre Mills. Leased by James Hennessey (Garfield, N. J.). P. H. Walsh, superintendent. Make men's suitings. 10/03 ....

Holyoke. National Felting Company, corner Bigelow and Cabot Sts. William Taylor, president; F. S. Webber, vice-president; H. J. Beebe, Jr., secretary and treasurer. Fine felts. Four preparing cards and one crosser cards. 10/03 ....

Lawrence. Selden Worsted Mills. Geo. L. Selden. Fine worsted dress goods 29

Leicester. Ashworth, Robt. & Bro. Satinets. 5/03 ..... 2 ..

Lowell. Musketaquid Worsted Co., 125 Davidson St. Ladies' dress goods. Finish. Oelbermann, Dommerich & Co., s. agts. (Buy worsted yarns from 10s to 60s.) 40

North Chelmsford. Shirreff's Worsted Co. $100,000. Geo. E. Kunhardt, president; John Shirreffs (Fitchburg), treasurer; D. W. Shirreffs, superintendent. Fine fancy worsteds; 60 broad and 3 narrow looms. Kunhardt & Stockton, s. agts. (E) (Operate Success Mfg. Co.'s plant.) .. ..

North Oxford. Huguenot Mills Co. T. M. Gates, president; Geo. H. Wilson, treasurer; Geo. A. King, secretary. (Purchased plant formerly operated by Weiss & Nichols Co.) ....

Oxford. Buffinsville Woolen Mfg. Co. Geo. W. Olney Woolen Co. purchased Buffum's Mill. Dress goods ....

Plymouth. Plymouth Worsted Mills. Robert M. Cohen and Herbert Lockwood. (Office, 87 Summer St., Boston.) Shawls and novelty goods; 1 filling winder, 1 dressing frame. Sell direct. 3/03 1

Worcester. Daniels' Worsted Mill. Geo. Daniels. Cotton worsteds. L. Rubenstein & Co., N. Y., s. agts. (S) 3/03 27

NEW HAMPSHIRE.

Franklin Falls. Leach, James E. and John Holland. Operate carding and spinning departments of the Aiken Mill. Yarns, any stock or size ....

Laconia. Laconia Woolen Co. $50,000. E. F. Burleigh, president; Fred A. Young, treasurer; Albert Crabtree, agent and superintendent. Cotton warp dress goods. (D) (W) 11/03 ..... 4 16

Somersworth. Queensbury Mills. (Branch mill.) Main plant at Worcester, Mass. Worsted yarns, from 1s to 2/40s (Bradford system); 2,000 worsted spindles. 4/03 ....

NEW JERSEY.

Braddock. Brimfield, Wm. Rugs ....

Camden. Camden Wool Stock Co., 2d St. and Delaware River. $50,000. Thomas Lee, president and buyer; Jno. F. Walsh, vice-president; Harry Gerlach, secretary and treasurer. Carbonizers and manufacturers' wool stock. Sell direct. (S) ....

Camden. Casey & Lund, 2d & Erie Sts. Commission spinners alpaca and worsted yarns. 960 cop and 480 twisting spindles. E. Lund, buyer ..... 1 ..

Camden. Lunn Company, John, The. John Lunn, president and manager; Edward S. Laurence, secretary and treasurer. Wool scouring and carbonizing. Built new mill and equipped with 2 sets scouring machines, 2 sets carbonizing machines, pickers, etc. ....

Camden. Shapcott & Weaver. 107 Erie St. Richard Shapcott, superintendent and buyer. Roller covering, cotton and wool. (F) Sell direct 5

NEW YORK.

Auburn. American Axminster Co. $100,000. A. F. Firth, president; G. H. Nye, treasurer; Chas. W. Read, superintendent. Axminster rugs. B. H. Tobey, 133 5th Ave., N. Y., s. agt. (S) (D) 20

Frankfort. Mohawk Valley Woolen Co. $50,000. James Hamer, president and superintendent; T. F. McKeough, secretary and treasurer. Paper makers' felts; jackets and special woolens. Sell direct. (D) (S) (In plant formerly run by Frankfort Linen Mills) 2 10

Mechanicville. Mechanicville Fibre Co. Woolen and cotton shoddies, dyeing, picking and garnetting; 1 picker; 2 dusters; 2 garnetts; steam. (D) (Operating plant formerly run by Witbeck & Cunningham) ....

NORTH CAROLINA.

Spray. Spray Woolen Mills Co. $100,000. B. Frank Mebane, president; A. E. Millner, secretary and treasurer; M. J. Tyler, superintendent. Blankets; 2,600 mule spindles. (New building erected 227x72.) 1/04 ..... 4 60

PENNSYLVANIA.

Bristol. Leedom, Thos. L., Co. New building under construction 190x55 feet, 3 stories and basement, with weave shed extension 40x87 feet, 1 story. Also supply house, 50x50x68 feet ....

Chester. Chester Worsted Co. $100,000. Joseph Messick, president; W. Seymour Runk, treasurer; Jno. W. Turner, superintendent. Worsted yarn, 15 to 40, 1/4 and 1/2 blood (Bradford system); 2,032 worsted spindles. Sell direct. (S) 2/03 ....

Chester. Highland Mills Co. H. E. Mitchell & Co. James Dalton, Sr., superintendent. Woolen and merino yarns and woolen goods. (Operating one of the Esrey Mfg. Co.'s mills) 6 84

Chester. Powhatan Mfg. Co. (H. L. Trafford, C. M. Benson and C. W. Andrew.) C. M. Benson, superintendent. Ladies' dress goods; 100 looms. (Formerly one of the Esrey Mills) ....

Cly. Susquehanna Roofing Mfg. Co. $50,000. C. Chase Eastlack, president; E. R. Owen, treasurer. Roofing felts, deadening felts and sheathing paper. Sell direct. (S) 4/03 ....

Harrisburg. Harrisburg Woolen Co. $100,000. Frank R. Leit, president; B. F. Ely, secretary and treasurer; Wm. Roebuck, superintendent. Dye. 10/03 ..... 2 18

Philadelphia. Andrew's Mill Co. Leiper and Adams Sts. J. Dubrulle, president; E. Mathon, vice-president (Toureving, France); A. Demetre (395 B'way, N. Y.), agent; A. Veluard, superintendent. Ladies' dress goods. (To operate total of 90 looms.) 12/03 30

Philadelphia. Baxter, William. Davenport Mills, Mascher and York Sts. Art squares 1

Philadelphia. Cumberland Worsted Company. Dale Mill, Gillingham St., Frankford. Suitings and trouserings. 11/03 18

Philadelphia. Dodd & Leibert, 7335 Mascher St. Mr. Dodd, superintendent. Ingrain carpets. Sell direct 12

Philadelphia. Graham, Thomas. 240 Waterloo St. Ingrain carpets 6

Philadelphia. Hartley, William H. 2306 Waterloo St. All wool Smyrna and Oriental rugs. Sell direct 6

Philadelphia. Henry, Thomas, Jr. Madison St., east of Kensington Ave. Carpet and upholstery yarns; 1,500 spindles; steam; sell direct. Thos. Henry, Jr., buyer ..... 12 ..

Philadelphia. Jackson & Thompson. Whittington Mill, High St. and Leverington Ave., Manayunk. Commission combing, scouring and carding (English system); 4 combs; 4 cards ....

Philadelphia. Maynard Mills. 6th and Columbia Ave. $100,000. H. J. Maynard, president; H. H. Bosworth, vice-president and treasurer; William Steel, secretary and superintendent. Woolens and worsteds for men's wear. W. V. Bishop, 83 and 85 Green St., N. Y., s. agt. (To add 20 more looms.) 11/03 20

Philadelphia. McCauley, Henry. Mascher and Jefferson Sts. Art squares. Sell direct 3

Philadelphia. Philadelphia Axminster Carpet Co. (Fretz Bldg.), 10th and Diamond Sts. George Flint, president; James Hallowell, vice-president; John Thomson, Jr., secretary, treasurer and superintendent. Fine carpets. (Expect to operate 30 looms in full) 26

Philadelphia. Philadelphia Felt Co., Ltd. N. E. corner Adams and Emerald Sts. Paper makers' felts, etc. F. S. Christian (2514 Frankford Ave.), interested. 11/03 ....

Philadelphia. Shelton Mfg. Co. John H. Willey, proprietor. Collom St. and P. & R. RR., Sydney Crowther, manager. Carpet yarns (5 sets) and fine yarn (2 sets). Sell direct. 10/03 ..... 7 ..

Philadelphia. Smith Bros. Mascher St. below Lehigh Ave. Ingrain carpets. Sell direct 6

Philadelphia. Unity Woolen & Worsted Co. Aramingo Mills, Frankford. William Barras, manager. Ladies' and men's fine woolen and worsted goods. Sell direct 20

Philadelphia. Young, Davis & Co. 5th and Columbia Ave. Wayne K. Hawk, superintendent. Three shoot velvet carpets. Sell direct. (E) (In building formerly occupied by Sauquoit Silk Co.) 10

RHODE ISLAND.

Chepachet. Prendergast, Wm. H. Purchased woolen mill here ....

Greystone. Benn, Joseph & Son, Inc. $1,000,000. H. Benn (Bradford, Eng.), Frank Sheldon, Cyrus M. Van Slyck, C. C. Mumford, Providence, R. I. Mohair and alpaca yarns. (Plans not yet finished Nov., '03) ....

Providence. Rhode Island Rug Works. 99 Stewart St. Wm. D. Flagg, manager and buyer. Rugs from old carpets; hand power. Sell direct 4

Wakefield. Wakefield Mfg. Company. $75,000 (authorized). Louis F. Bell, president; Geo. A. Kroener, Jr., treasurer; F. B. Rollinson, superintendent. Ladies' costume cloth and specialties. Ethan Allen, N. Y., s. agt. (D) (S & W) (Purchased Wakefield Mill property of Rodman Mfg. Co.) 9/03 ..... 4 24

Woonsocket. Scotia Worsted Mills. $70,000. James D. Colt, Montgomery Rollins and Benj. E. Bates, interested. (Operate Simson & Kirkaldy Mill) ....

Springfield. Springfield Woolen Mills Co. $50,000. H. LeDuiin, president; M. D. Woodward, treasurer; Harry Tatham, superintendent and buyer. Blankets. Sell direct. (S) (D) (Expect to add another set cards and 12 looms in the spring.) 11/03 ..... 1 10

WEST VIRGINIA.

Keyser. Patchett Worsted Co. $100,000. F. M. Reynolds, president; Jos. E. Patchett, treasurer; John B. Isles, superintendent. Worsted yarn, from 1s to 40s, any fold (Bradford system); 4 combs; 3 cards; 2,000 worsted spindles. Sell direct. (S) (D) ....

WISCONSIN.

Jefferson. Cairns, McDonald & Co. Blankets, cassimeres and meltons. (D & F) (W) Sell direct. (Operate the Jefferson Woolen Mills, idle some time) 1 5

CANADA.

St. Jacobs. Canada Felting Co. $50,000. E. W. B. Snyder, president; Alfred Snyder, treasurer; Edward Ross, superintendent. Felt boots and shoes. Sell direct. (D) 10/03 ....

MANITOBA.

Rapid City. Rapid City Power Light & Woolen Mfg. Co. $25,000. J. G. Hindson, president; J. A. Cowan, manager. Pure wool yarns and blankets. Sell direct. (E) (D) 1 3

ONTARIO.

Wiarton. The Freeman Woolen Co. $40,000. H. C. Kennedy, president; B. B. Freeman, treasurer; T. E. Tanner, superintendent. Tweeds, flannels, blankets, yarns, etc. Sell direct. (S) (D) 7/03 .. 1 8

NEW KNITTING MILLS

No. Kig. Machines

ALABAMA.

Birmingham. Jefferson Hosiery Mills. Incorporated with capital stock $30,000. Purchased plant of Birmingham Hosiery Mills ....

Sycamore. Sycamore Knitting Mills. $10,000. W. R. Schreme, president; W. B. Callahan (Utica, N. Y.), secretary; D. E. Lewis, treasurer. Cotton ribbed underwear ....

DELAWARE.

Wilmington. Enterprise Hosiery Mills. John L. Sutphen, proprietor. S. W. corner Fifteenth and French Sts. Men's plain and fancy half hose; also infants' plain and lace cotton and cashmere hose. 4 loopers; 2 sewing machines. Berry & Smith, N. Y., s. agts. (S & E) (Buys 8 to 40 yarn.) 30

GEORGIA.

Athens. Climax Knitting Mill. New mill building 80x30 feet, 2 stories, brick. Also new engine and boiler house and dye house. Will instal Dubois system of dyeing. New additions expected to be in operation January or February ....

Barnesville. Empire Knitting Mill. $25,000. Underwear .. ..

Montezuma. Montezuma Mfg. Co. $60,000. E. B. Lewis, president; W. H. McKenzie, treasurer and agent; H. M. Duss, superintendent. Women's underwear. E. M. Townsend & Co., N. Y., s. agts. (Bl) (To increase to 500 doz. daily.) 1/04 .. 20

Rome. Rome Hosiery Mills. $25,000. N. J. West, president; Roy West, treasurer; H. W. Thurston, agent and superintendent. Men's, women's and children's hosiery. (S) (D) J. B. Stuart, N. Y., s. agt. (Formerly Saddle River Hosiery Mill, N. J., and put in additional machinery.) 4/03 .. 90

ILLINOIS.

Chicago. Strauss, Ed. 260 E. Division St. Golf jackets, men's sweaters and hosiery .. 18

MASSACHUSETTS.

Boston. Boston Knitting Mills. 76 Summer St. Ladies' and men's sweaters. 12 sewing machines. Sell direct. S. D. Cohen, buyer. 7/03 10

Chicopee Falls. Knit Goods Specialty Co. Knit tubular covering, mantle fabric, table tennis nets and specialties of all kinds .. ..

Quincy. Cambridge Knitting Mills. $60,000. E. W. Chapman, president; C. A. Campbell, treasurer. Sweaters for men, women and children. Specialty—the "Cambridge Jacket." Chapman & Campbell, 68 Essex St., Boston, s. agts. (E) .. ..

Ware. Ware Hosiery Mills, The. L. P. Deslauriers, proprietor. Men's, ladies' and children's hosiery, gloves, mittens and sweaters. Sell direct. (Buy yarn.) (S) (D) 7/03 .. 10

MICHIGAN.

Grand Rapids. Remington & Hayes. C. W. Hayes, superintendent. Men's and women's full fashioned underwear. 7 sewing machines. Sell direct. 11/03 .. 6

Port Huron. Progressive Knitting Mills, Detroit. Established branch mill here. New building erected. Men's, women's and children's mittens and gloves .. 75

Saginaw. New "K" Knitting Co. 808 Genesee Ave. Woolen and cotton hosiery, mittens. Polish boots and all kinds of knit goods. Sell direct .. 4

St. Joseph. Cooper Wells & Co. Replaced plant destroyed by fire with three-story building 227x67 feet. Equipped with 4 sets cards and mules; about 400 knitting and 60 sewing and looping machines. (E) .. ..

MISSISSIPPI.

Tupelo. Topsy Hosiery Mills. (Ell-Walker Dry Goods Co., St. Louis, Mo.) Ladies' and children's hosiery. (Capacity 500 dozen per day.) 9/03 .. ..

NEW HAMPSHIRE.

Nashua. Granite State Knitting Co. G. R. Ruffle, proprietor. Men's, women's and children's mittens and gloves. 3/03 .. 11

NEW JERSEY.

Bordentown. Blakeley, Harry. Hosiery .. 5

Haddonfield. Estaugh Knitting Mills. Robt. T. Wood, superintendent and buyer. Ladies' light weight underwear. 5 sewing machines. 11/03 .. 5

Hammonton. Cottrell, David. Hosiery. 7 sewing machines. Sell direct. 8/03 .. 25

NEW YORK.

Brooklyn. Alliance Knitting Mills. 532 Linden St. Full fashioned sweaters of every description. Sell direct .. ..

Brooklyn. M. Becker & Co. Metropolitan Knitting Mills. Metropolitan and Flushing Aves. All kinds of fancy knit goods, shawls, sweaters, blouses, toques, etc. Sell direct. (Gas engine.) 10 sewing machines .. 12

Brooklyn. Morguntia Knitting Works. M. Schneilbacher. 850 De Kalb Ave. Tam O'Shanters, toques, sweaters and ladies' golf waists. Sell direct. (S) 3/03 .. ..

Brooklyn. Sterling Knitting Mills. Samuel Sheindelman, president; Herman H. Sheindelman, treasurer. Sweaters, blouses, shawls, bootees, infants' wear, jerseys, bathing suits, for children, men, and women and novelties. Sell direct. (S) 1/04 .. ..

Camden. Camden Textile Co. $15,000. W. J. F. Van Allen, president; E. S. Babcock, treasurer; John Pennington, superintendent and buyer. Ladies' and misses' worsted and cotton union suits. Converse, Stanton & Co., s. agts. (S) 15 sewing machines. 11/03 .. 20

Cohoes. Reliance Sweater Co. $15,000. John H. Boyce, president; James H. Shine, treasurer; D. G. McLaren, superintendent. Sweaters. Sell direct. 6/03 .. ..

Fonda. Mystic Star Mills. Wilson & Wilkes. Men's and boys' cotton, wool and silk sweaters, knit novelties, etc. Critten, Clift & Co., s. agts. (S) (D) 6/03 .. ..

Fort Hunter. Key, E. H. Woolen and worsted boys' and men's sweaters. 3 sewing machines. (S) (Buy wool and worsted 2/20.) .. 4

Geneva. Geneva Knitting Co. $75,000. Conrad Wehnes, president and treasurer; Clinton D. Herman, agent; Wm. J. Hynes, superintendent. Sweaters, toques and athletic goods. 4 sewing machines. Wm. J. Hynes, buyer. Sell direct. (E) .. 20

Greenwich. Linen Underwear Co. $30,000. LeRoy Thompson, president and secretary; J. W. Wallace, treasurer; S. J. Brown, superintendent. Knitted linen underwear. Sell direct. (E) (D & F) .. 8

Hoosick Falls. Hoosick Valley Knitting Co. Trimble Bros., proprietors. Balbriggan underwear .. ..

Johnstown. Victor Glove Lining Mill. James H. Cross, proprietor. Glove linings. (Buys cotton yarns) .. ..

Nichols. Nichols Knitting Mills. B. L. Winters, president; J. R. Edsall, vice-president; Geo. M. Cady, secretary and treasurer. Cotton half hose. (S) (Buy cotton yarn 1/13, 1/16 and 1/30.) 10/03 .. 15

Philmont. McNamee Mesh Underwear Co. $30,000. D. V. McNamee, president; Ira J. Horton, secretary and treasurer; James McNamee, superintendent. Mesh underwear, cotton, linen and silk. 20 sewing machines. Sell direct. (Use yarns from 20s to 80s) .. 12

Phoenix Mills. Fenimore Knitting Mills. $100,000. John P. Doane, president and manager; Richard I. Brewster, treasurer. Underwear and overshirts. Bolger & Brewster, s. agts. 2 sets cards; 77 knitting and 199 sewing machines. (Operating plant formerly known as the Index Knitting Mills) .. ..

Utica. Adirondack Knitting Mill. Gustav Arnold. Cardigan jackets, boys' and men's sweaters. Sell direct and work on contract. 9/03 .. ..

Utica. Fisher Textile Co. 8 N. Genessee St. $100,000. M. J. Fisher, president and manager; B. L. Fitch, treasurer. Silk ribbed underwear. 150 sewing machines .. 75

Warsaw. Oatka Hosiery Co. $50,000. Geo. C. Otis, president; W. J. Humphrey, secretary and treasurer; F. W. Harington, manager. Seamless and full fashioned hosiery. (Operate the Warsaw Knitting Mills Co.'s plant) .. ..

NORTH CARFOLINA.

Albermarle. Wiscassett Mills Co. Capital stock increased. New mill erected for spinning and knitting. About 500 machines. 12/03 .. ..

Henderson. Balfron Knitting Co. P. H. Brown, general manager. Men's and ladies' underwear; 37 knitting and 70 sewing machines. Sell direct. (Formerly the Seaboard Knitting Mill) .. ..

Hendersonville. Oats, R. M. Ladies' black leg white foot goods and men's 84 needle half hose. Sell direct. (E) 9/03 .. ..

Raleigh. Martin Hosiery Mill. J. B. Martin, treasurer; T. A. Jones, superintendent and buyer. Men's cotton half hose. 3 sewing machines. Sell direct. (S) 2/03 .. 15

Winston. Hanes, P. H., Ktg. Co. $100,000. P. H. Hanes, president; W. M. Hanes, vice-president; P. H. Hanes, Jr., treasurer. Fleeced-lined ribbed cotton underwear, for men, women and children. 60 sewing machines. Critten Clift & Co., N. Y., s. agts. (S) (D) 11/02 .. 30

Winston-Salem. Carolina Mill Co. Green, P. K. and W. A. Blair. Misses' rib hosiery (capacity 300 doz. per day). (D & F) (Remodelled mill building 40x50, 3 stories.) 12/03 ....

OREGON.

La Grande. Crescent Mfg. Co. William K. Davis, manager and buyer. Union suits for men, women and children; knit skirts, sweaters, hose, gloves and mittens. 4 sewing machines. 3/03 7

PENNSYLVANIA.

Adamstown. Hope Hosiery Co. Men's half hose. Sell direct. (S) 30

Elmhurst. Gregory, D. Wool half hose, 52 needles. Sells direct 5

Forest City. Anthracite Knitting Co. $15,000. T. P. McCormick, president; Howard P. Johns, treasurer; L. M. LaBarr, superintendent. Men's and boys' sweaters, cardigan jackets and ladies' waists. 2 sewing machines. Joseph Colter, N. Y., s. agt. President, buyer. (German machines.) 7

Hamburg. Fisher, H. Scott & Son, Keystone Knitting Mills. Men's cotton ribbed underwear ....

Hamburg. Merkel, James L. Hosiery. Sell direct. (Erected new structure.) 9/03 ....

Hawley. Hawley Falls Knitting Mill. (Hugh T. Morgan and Carl F. W. Ludwig.) High class knit goods; fancy. sweaters, ladies' blouses and vests a specialty. Sell direct. N. Y. office, 54-56 Franklin St. 8

Hawley. Hawley Knitting Works. Clemens Lenke, proprietor. All kinds knit goods ....

Lebanon. Lebanon Textile Co. New mill erected here, 3 stories and basement, 200x52 feet, with boiler and engine house. Also dye house put up. Plant removed from Avon.... ..

Lyon Station. Lyon Knitting Mills, The. Geo. W. Malick, proprietor. Men's seamless half hose. (Use 11s and 9s yarns.) Sell direct (S) 12/02 18

Mohn's Store. Electric Hosiery Co. New building erected. Hosiery. (S) 5/03 ....

New Bloomfield. Darlington & Clouser. Half hose. (Use Nos. 12 to 24 yarn.) (S) (Formerly C. M. Romberger Mill.) 6/03 ....

New Ringgold. Saul, J. I. Hosiery. Jas. Talcott, N. Y. s. agt.; J. I. Saul, buyer. 2 sewing machines. (S) 35

Norristown. DeKalb Knitting Mills. John Mains (N. Y.), agent; Henry Pulsfer, superintendent and buyer. Fine men's half hose and misses' fine ribbed hose. Steam. Sell direct. (Formerly Franklin Knitting Co.'s mill.) 9/03 70

Norristown. Home Knitting Mills. Herman Preissler and Geo. W. Watt. $5,000. Cotton lisle half hose. 2 loopers. Wm. Iselin & Co., N. Y. s. agts. 15

Pennsburg. Pennsburg Knitting Co. Samuel Wolfindin, president and superintendent; Geo. W. Kite, treasurer. Men's, women's and children's cotton hosiery. Geo. W. Kite, buyer. Sell direct. (S) 7/03 43

Philadelphia. Adams, M. K. Norris and Belgrade Sts. ....

Philadelphia. Barger, Charles C. 2420 Waterloo St. Infants' high grade hosiery. (Will add 9 more machines.) 7

Philadelphia. Barth, C. O. & Co. N. E. corner 2d and Diamond Sts. Men's, ladies' and children's sweaters, jackets and fancy goods, wool and worsted. 4 sewing machines. Sell direct 15

Philadelphia. Carvin Knitting Co. Joseph J. Carvin, president; Geo. Caruthers, vice-president; Robert H. Steele, secretary; Joseph J. Carvin, Jr., treasurer and general manager. (Purchased plant of John E. Pike Mfg. Co.) Manufacture cotton and lisle hosiery ....

Philadelphia. Fuhs Bros. 2306 Waterloo St. Athletic and ladies' hose and half hose, about 300 dozen daily. Sell direct. 1 Balmoral and 2 sewing machines 10

Philadelphia. Fussner, Joseph W. (formerly Barger & Fussner). 4155 Frankford Ave. Fine infants' goods. 8/03 40

Philadelphia. Glen Knitting Co. Trenton Ave. and Sargent St. $100,000. Thomas E. Brown, president; Leonard M. Addis, treasurer; Wm. S. Ash, secretary. Full fashioned hosiery, lace and embroidered novelties. 20 sewing machines. Harrington & Waring, N. Y., s. agts. (S) (D) 250

Philadelphia. Hercules Hosiery Co. $10,000. Jos. F. Gee, superintendent. Men's fine gauge Egyptian seamless half hose. 45 Knitting machines. (Purchased plant of Iona Hosiery Mills.) ....

Philadelphia. Hutton Mfg. Co. 20 Strawberry St. A. J. Martin, superintendent. Sweaters, bathing suits, eiderdown, golf vests. Sell direct 14

Philadelphia. Lee Hosiery Mills. Geo. B. Pfingst, proprietor. New mill erected Kensington Ave. and Ontario St., 200x75 feet, three stories ....

Philadelphia. Lupprian, Chas. Cope Mill. Cardigan jackets (wool and worsted) 16

Philadelphia. Oak-Lane Knitting Mills. 5126 Wakefield St. T. J. Woodcock, general manager and superintendent. Cotton sweaters. 4 sewing machines. Sell direct 7

Philadelphia. Reliable Mfg. Co. 333 Wood St. Harry Polasky, superintendent. Incandescent gas mantles. Sell direct 1

Philadelphia. Unique Knitting Mills. $20,000. 10th and Diamond Sts. Knitted towels ....

Pittston. Sheppard, C. S. Shepard's Hosiery Mill. H. Sheppard, superintendent. Cotton hosiery. (Use 12 to 15 cotton cones.) J. W. B. Carson, Phila., s. agt. 8

Pottstown. Manatawny Knitting Co. $6,000. E. S. Gottshalk, superintendent. Women's hose and men's half hose (use yarn from 11 to 81). 1 sewing machine. (S) 3/03 35

Port Carbon. Phillips, M. & Son. E. Straub, superintendent. Drawer anklets and webbing cotton. I. L. Phillips (24 White St., N. Y.), s. agt. and buyer. (S) (F) (Buy 24 single.).. 14

Reading. Lieb & Brossman. 111 Lemon St. Men's half hose. (Use 14 to 16 yarn.) N. W. Lieb, buyer. (S) 7/03 ....

Reamstown. Lesher-Raig Knitting Co., Ltd. Alfred J. Raig, president; Pierce Lesher, treasurer. Misses' and children's ribbed underwear. Sell direct. 7/03 10

Schuylkill Haven. McWilliams Bros. Ladies' and misses' cotton ribbed underwear. (F) .. ..

Scranton. Menzies Knitting Co. $40,000. E. A. Clarke, president; I. McBean, secretary and treasurer; Wm. Menzies, general manager. Infants', misses' and ladies' fine hosiery. (S) (New building erected.) 4/03 75

Shamokin. Northumberland Hosiery Mills Co. (M. F. Shoemaker, Drexel Bldg., Phila., interested.) Hosiery. 6/03 30

Somerset. Fink & Emert. Chas. H. Emert, superintendent. Men's, women's and children's hose. (Use yarns 2 ply 17 cut wool, 2/15, 3/15, and 3/15 worsted 6 1/2.) 5/03 ..... 1:

South Bethlehem. Yost & Mackay. 101 West 4th St. Thos. Mackay, superintendent. Men's cotton half hose. Sell direct. R. J. Yost, buyer. (Buy 26s yarn.) (E) 12/03 10

Waymart. Waymart Knitting Co. F. S. Stephenson, secretary and treasurer; L. B. Guckenberger, manager. Sweaters, cardigan jackets, etc. 6/03 15

Williamstown. Mellon & Romberger. Geo. Mellon and D. H. Romberger. High grade hosiery. 3 loopers. Sell direct. (S) 14

SOUTH CAROLINA.

Blackville. Alling, W. M. Men's and ladies' hosiery. (Use 10s to 40s cotton, also worsted yarn.) Sell direct, 256 Church St., N. Y. (S) (D) 7/03 70

TENNESSEE.

Harriman. Harriman Knitting Mills. $20,000. A. H. Wood, president; W. S. Wood, manager. Ladies' light weight underwear. (Capacity 200 to 250 dozen per day.) Bleach. 12/03 ..

Madisonville. Madisonville Knitting Mills. $25,000. M. G. Wright, president; R. G. Kefauver, secretary, treasurer and general manager 25

Sparta. Sparta Knitting Mills. $15,000. Richard Hill, president; S. S. Dibrell, vice-president; J. R. Tubbs, secretary and treasurer; S. J. Jackson, general manager. Ribbed and fleece lined underwear. 30 sewing machines. (W) 7/03 12

Sweetwater. Sweetwater Hosiery Mills. $30,000. John M. Jones, president; John M. Jones, Jr., treasurer and buyer. Ladies' and men's hose. (S) (D) 8/03 ....

TEXAS.

Hillsboro. Hillsboro Hosiery Factory. E. L. Sessions, proprietor; J. B. Jennings, superintendent and manager. Men's cotton and woolen hosiery. (Buy yarn 10 to 20.) 6

UTAH.

Ogden. Home Knitting Co. $25,000. David C. Eccles, president; David O. McKay, treasurer; Egbert C. Stratford, superintendent and buyer. Knit goods; union suits; hosiery, sweaters, etc., for men, women and children. Sell direct. (E) 3 sewing machines. 4/03 15

VERMONT.

Bennington. The E. Z. Waist Co. $25,000. F. E. Haight, treasurer. Knit goods; children's E. Z. waists. Sell direct. (W) ....

VIRGINIA.

Charlottesville. Marchant, H. C., Mfg. Co. $70,000. H. C. Marchant, president; R. P. Valentine, vice-president; W. C. Walter, treasurer; C. B. Somerville, secretary. Ribbed flat fleeced lined men's, women's and children's underwear. 45 sewing machines. (S) 2/03) .. 30

Farmville. Cooke & Walton. Purchased Farmville Hosiery Co.'s mill. Operate on men's, ladies' and infants' hosiery. Propose adding a dye plant ....

Manchester. Shields, E., Hosiery Mills. $10,000. Removed from Scotland Neck, N. C.; remodelled old church building and added 18 new knitting machines. Operate total of 40 knitting machines; 7 ribbers; 7 loopers and 2 sewing machines ....

Roanoke. Roanoke Knitting Co. Daniel Robb and Charles Michael. Cotton hosiery for men and children. (Capacity 500 dozen per day.) Sell direct. 7/03 ....

WASHINGTON.

Tacoma. Puget Sound Knitting Mills. 902 South Yakima Ave. Ward H. Cramer, proprietor. Men's, ladies' and children's high grade knit underwear, sweaters, jackets, etc. ....

WEST VIRGINIA.

Shepherdstown. Potomac Knitting Co. (Partnership, Chas. Miller and S. H. Weihenmayer); S. H. Weihenmayer, agent and superintendent. Misses' and boys' seamless ribbed hosiery. Sell direct. (S) 40

WISCONSIN.

Madison. Madison Knitting Co. $10,000. S. P. Rundell, president; M. S. Klauber, treasurer; J. W. Shaw, superintendent. Woolen hosiery. Sell direct ....

Milwaukee. Union Knitting Co. J. G. Pohler. $100,000. 232 Grove St. Triple heel and toe hosiery ....

Two Rivers. Zulu Hosiery Mills. W. S. and Fred Bremer, proprietors. $10,000. 8 ribbers.. 20

West Bend. West Bend Knitting Mills. $10,000. Eugene S. Weil, president; Herman H. Newberger, treasurer; Jas. B. Friedlander, superintendent. Sweaters, oversleeves for men, women and children. 2 sewing machines. Sell direct. 2/03 16

ONTARIO.

Berlin. Berlin Robe & Clothing Co., Ltd. $100,000. Geo. Moore, president; W. J. McMurty, superintendent and buyer. Robes and coats, using worsted yarn and cotton. 6 sewing machines. Sell direct. (S) (D) 8/03 4

Dunnville. Monarch Knitting Co. $20,000. F. R. Lalor, president; J. A. Burns, secretary and treasurer; John Slingsby, superintendent. Sweaters, golf vests, etc. Sell direct. (S) (D & F) 20

Hamilton. Ellis Manufacturing Co. (Port Dover, Ontario and Jonesville, Wis.) New mill. Men's and women's fine grades spring needle ribbed underwear. 30 sewing machines. (E) 25

Toronto. Gordon, Mackay & Co., Ltd. Puritan Mills. Ladies', children's and infants' cotton and woolen underwear. Sell direct ....

Walkerton. Walkerton Hosiery Co., Ltd. $40,000. J. Henderson, president. D. Williams, superintendent. Worsted and cashmere hose and mitts. 3 sewing machines. Sell direct. (S) (D & F) 40

NEW SILK MILLS

CONNECTICUT.

Norwalk. Muller Gloria Mills. Richard Muller, agent and buyer. Umbrella cloth. 100 looms. Sell direct. (S) (D) (Under construction Nov., '03.)

MASSACHUSETTS.

Boston. Boston Artistic Silk Weaving Co. 74 India St. Matthew Wickman, general manager. Narrow silk fabrics.

NEW HAMPSHIRE.

Dover. Cocheco Mfg. Co. Building new mill for manufacturing velvets or velveteens.

NEW JERSEY.

Paterson. Advance Ribbon Co. (Essex Mill.) Ribbons. 13 looms. L. Erstein & Bro., s. agts.

Paterson. Ashley, W. H. (Hackettstown). Hamil Mill. Throwing. 5,000 spindles. 3/03.

Paterson. Brawer Bros. Harmony Mill. Commission throwing.

Paterson. Cocker & Van Splinter Throwing Co. $25,000. Edward Van Splinter, president and superintendent; Chas. H. Scribner, treasurer. Commission throwsters; tram a specialty. 1,500 spindles. (S)

Paterson. Doherty, Henry. Leased space in Hamil & Booth Mill. Finish goods. 220 looms.

Paterson. Hamilton Silk Co. Industry Mill. $100,000. August A. Fischer, president; Thomas E. Platt, treasurer. Sewing silk, mourning veiling and novelties a specialty.

NEW SILK MILLS

Paterson. Harmony Silk Co. $100,000. David Schmitz, president; H. Walter Baer, treasurer; W. H. Rogers, superintendent. Throwing silk. 2,160 spindles. (S) 1/04.

Paterson. Manhattan Silk Co. Addy Mill. Broad silks. 15 looms. Sell direct.

Paterson. Paterson Broad Silk Works. (I. Tannenbaum & A. Nussbaum.) 93 River St. Broad silks. 10 looms. Sell direct.

Paterson. Potts, Dunkin & Co. Voorhis Mill. Broad silks. 24 looms. Sell direct.

Paterson. Purse & Monday. Buffalo Ave. and Paxton St. Broad silks. 10 looms. Chas. J. Davis, N. Y., s. agt.

Paterson. Seaton, H. H. Co. Industry Mill. Silk throwing.

Paterson. Stark-Philips Silk Co. Winfield Mill Broad silks. 84 looms. (Purchased mill formerly run by Rettger-Allen Co.)

Paterson. Union Ribbon Co. $30,000. E. Weibel, president; H. E. Crowther, secretary and treasurer. Ribbons. 20 looms. H. A. Caesar & Co., N. Y., s. agts.

NEW YORK.

Amsterdam. Kayser, Julius & Co. Branch mill established here. New building, 40x68 feet, 2 stories, erected. Sewing department.

Andover. Rochambeau Silk Co. $150,000. Broad silks. 100 looms. Poncet & Neeser, N. Y., s. agts. (E)

Astoria (Long Island). Fidelity Silk Mills. $100,000. G. J. Newwitter, president and treasurer; Ludwig Spoer, superintendent. Broad silks. 100 looms. Peierls & Co., s. agts. (S)

Binghamton. Chenango Silk Co. $150,000. James W. Sturtevant, president; Alfred Ruegg, treasurer and superintendent. Silk linings and silk dress goods. 200 looms. Sell direct. (E) 3/04.

Brooklyn. Empire Ribbon Co. 960 Manhattan Ave. F. C. Kuehule, superintendent. Ribbons. 15 looms. Sell direct.

Brooklyn. Stirling Silk Mfg. Co. 8th Ave. and 18th St. (New building erected.) Silks. 100 looms. (Branch of main mill at Sterling, N. J.)

Delhi. Delaware Valley Silk Throwing Co. Wright Smith (Paterson, N. J.), s. agt. Throwing silks. 10,000 spindles.

Fultonville. Amsterdam Silk Mills. Fultonville Branch. Installed sewing machines.

Lyons. Gloversville Silk Mills. Gloversville. Established branch mill making silk gloves. Sewing machines only.

New York. Howard, S. 551 W. 49th St. Automobile veiling. 5 looms. Sells direct. (Hand power.)

New York. Maag, Edward. 213 E. 19th St. Upholstery trimmings and furniture gimp. 12 looms. (Hand power.)

New York. Tremont Mills, The. Park Ave. and Ittner Place. $100,000. Julius Jasper, vice-president and superintendent. Narrow silk ribbons. 80 looms. Sell direct. (S & E)

Ogdensburg. Oswegatchie Mfg. Co. (Office, 35 Mercer St., N. Y.) Broad silks.

Whitestone. Hepner & Horwitz. (30 Howard St., N. Y.) Baby ribbons and braids. 30 looms; 2,000 braiders. Sell direct. (S)

PENNSYLVANIA.

Allentown. Dery, D. G. Branch mill East Mauch Chunk. Leased space in building and equipped with machinery for weaving dress silk.

Allentown. Lumley & Barrett. Narrow ribbons, Nos. 1, 1 1/2, 2 and 3. 10 looms. E. & H. Levy, N. Y., s. agts. Firm, buyers. (E) 5/03.

Allentown. Rionor Silk Co. Incorporated with capital stock $100,000. Operate the Rionor Silk Mill. A. A. Fischer, president and superintendent. Baby ribbons and throwing. 8,000 spindles.

Archbald. Archbald Silk Mfg. Co. $25,000. Wm. Law, president; John Carroll, treasurer; A. R. Morrison, superintendent and buyer. Black taffeta silk. 50 looms. Sell direct. (S) 12/03.

Carlisle. Lockman Bros. Branch mill. Silk ribbons. (Main mill at Paterson, N. J.)

Dushore. Dushore Silk Mfg. Co. $50,000. Alphonsus Walsh, president; M. D. Swarts, treasurer; A. K. Morrison, agent and buyer; N. P. McTague, superintendent. Silks. 150 looms. Sell direct. 1/04.

Easton. Easton Throwing Co. $50,000. Jno. N. Stewart, president; Henry Ballantyne, treasurer; Chas. D. Thompson, agent; Jeremiah Coudran, superintendent. Throwing raw silk on commission. 4,500 spindles. (S) N. Y. office, 413 Broome St.

Easton. Easton Silk Co. $25,000. G. W. Stout, president; Wm. R. Haytock, treasurer; John Haytock, superintendent. Broad silks. 24 looms. Boessneck, Broessel & Co., s. agts. Wm. R. Haytock, buyer. (E) 3/03.

Easton. Perfect Silk Finishing Co. $10,000. Silk goods and crepe de chines dyed and finished. Jas. Holt, buyer.

Jessup. Bliss, Valentine. New throwing mill to be built here, to contain plants now at Roanoke and Peckville. Employ about 150 people.

Kutztown. Berks Silk Co. $25,000. M. Landru, treasurer; Geo. Clair, secretary; J. Hengeveld, superintendent. Silk throwing. 'Incorporated to operate plant of the Kutztown Silk Throwing Mills.)

Littlestown. Littlestown Silk Co. $50,000. Henry Musser, president; John F. Kissinger, treasurer; Sydney H. Souter, superintendent and buyer. Throwing and dress silks. 100 looms; 10,000 spindles. (S)

New Castle. West Pittsburg Silk Mfg. Co. $100,000. J. P. Shorrock, president and superintendent; C. A. Glaser, treasurer. Dress goods, taffetas, peau de soies, satins, pongees, etc. 200 looms; 2,500 spindles. Sell direct. (New mill building erected.) 5/03.

Olyphant. Harvey, Alfred Silk Co. (Branch mill.) Commission throwing. 10,000 spindles. (Main plant at Scranton.)

Philadelphia. Florence Silk Manufacturing Company. 10th and Susquehanna Ave. $50,000. Thomas G. Mills, president; G. Josephs, secretary and treasurer. Silk yarns. Sell direct. (E)

Philadelphia. Riege & Jermyn. 4155 Frankford Ave. Bonnet wire, silk cords and gimps.

Philadelphia. Scheiter, Jos. J. & Co. Frankford. Silk and cotton goods. 20 looms. (Office, 68 N. Third St.)

Reading. Reading Hosiery Embroidery Co., Ltd. (Harry Luders, S. S. Miller and W. H. Sands.)

Scranton. Ashley, Wm. H. (Hackettstown, N. J.) New mill completed, 145x50 feet, 2 stories. 10,000 spindles. Expect to incorporate after plant is in good running order. 9/03.

Scranton. Kilgour Silk Throwing Co. $100,000. Alfred Turner, president; J. J. Coogan, treasurer; Wm. H. Kilgour, secretary and manager. Throwing.

Scranton. Clemens, Paul Silk Mfg. Co. Paul Clemens, superintendent. Broad tie and lining silks. 100 looms. A. M. Ackerman, s. agt. (S) 3/03.

Shickshinny. Pequot Silk Mills. F. Q. Hartman, president and managing director; W. J. Hartman, vice-president and superintendent; E. J. Hartman, treasurer; T. H. Cutter, secretary. Commission silk throwsters.

Wilkes Barre. Wilkes-Barre Silk Co. $75,000. Joseph Wadsworth, president; Geo. A. Post, treasurer; Carl Fernbach, superintendent and buyer. Silk throwing on commission. 40,000 spindles. (S)

RHODE ISLAND.

Allendale. Allendale Silk Mill. Ramsey & Gore Mfg. Co. (P. O. address Centredale.) $50,000. Renovated Allendale Mill. Started with about 50 people and will increase in spindles and help until they have 15,000 spindles and 300 hands. Operated exclusively on silk twists. (Main mill at Paterson, N. J.)

Pawtucket. Wilkens Silk Co. B. W. Wilkens, proprietor. 39 Charles St. Chefoo pongee silk and all silk dress goods and linings. 50 looms. A. H. Sands (with H. A. Caesar & Co.), s. agt. (D)

VIRGINIA.

Roanoke. Bliss, Valentine. Commission throwing. 10,000 spindles. (Branch of main mill at Dickson, Pa.)

ONTARIO.

Peterboro. Colonial Weaving Co., Ltd. $60,000. F. J. Jameson, president; R. H. Kells, agent; C. Hasselman, superintendent. Woven labels, etc. Sell direct.

MISCELLANEOUS NEW MILLS

CONNECTICUT.

Norwich. Blissville Mills. $8,000. Rufus W. Tilden, president; Edwin Oldfield, treasurer. Dye, bleach and mercerize. (Capacity 1,000 lbs. mercerized yarn per day.) (W)

MASSACHUSETTS.

Canton. Springdale Finishing Co. Dyers and finishers of cotton piece goods.

Millbury. United States Linen Co. $350,000. Linen goods. (Operate Millbury Cotton Mills.)

North Heath. Benson, S. Ropes made from flax fibres. 1/03.

NEW JERSEY.

Bridgeton. Bridgeton Bleach & Finishing Co. $250,000. J. F. McMahon, superintendent. Bleach piece goods to 60 inches; capacity 50,000 yds. daily. (W. B. West of Phila. interested.) (S & W) (Use part of old iron works and expect to erect two new buildings 75x100 and 179x40 feet.) 3/04.

Paterson. Bohl Silk Dyeing Co. 6th Ave. and Branch St. Skein silk dyeing.

Paterson. Valeria Finishing Co. $10,000. Dyeing and finishing silks, etc.

NEW YORK.

New York Mills. Central Finishing Co. S. R. Campbell, president; W. S. Walcott, treasurer. Mercerize, bleach and dye yarns; shipped in cones, skeins or warps; also cloth mercerized and bleached.

PENNSYLVANIA.

Allentown. Pickup & Kean. New building erected. Cotton skein yarn dyeing. (S) 11/03.

Philadelphia. Angora Silk Dyeing Co. $20,000. 60th St. and Baltimore Ave. Ernst Holthausen, president; Edward Meyer, secretary and treasurer. Dyeing skein silk and piece goods.

Philadelphia. Buchanan, James. S. W. corner York and Mutter Sts. Bleaching raw stock, cotton and strips, linters and batting.

Philadelphia. Courtria Mfg. Co. 4155 Frankford Ave., Frankford. Hughes Fawcett (N. Y.); Keith Skein, manager. Linen threads and yarns for hosiery, underwear and electric trade. Also winding, coning, tubing and twisting for the trade.

Philadelphia. Dewey-White Bleaching Co. 2359 Potter St. Ralph P. White and Robert Dewey. Bleach and finish cotton goods, yarns, webbing, plush and velour covers and mercerized piece goods.

Philadelphia. Eclipse Fast Color Dye Works. Julius Phillips, proprietor. 1726 and 28 Hope St. Fast black and fancy colored hosiery and lisle finishing, a specialty. (Formerly A. Weber.)

Philadelphia. Farwell, Arthur. 110 Turner St. Dyeing woolen and worsted yarns.

Philadelphia. Oakdale Dye Works. Mathes Bros. Removed to new mill, 913 West York St.

Philadelphia. Tioga Dye Works. Schiller St., below Richmond. (Partnership, John J. Kane and Patrick Morris.) Dyeing cotton and woolen skein yarns. (S) 2/03.

Schuylkill Haven. Columbian Bleaching & Dye Works. $20,000. Edward L. Keane, president; John M. Boyle, treasurer; Jos. Hagerty, superintendent and buyer. Bleaching, dyeing and finishing. (S) 6/03.

RHODE ISLAND.

Alton. American Mercerizing Co. Thomas Frusher (of Frusher & Co.), interested. Mercerizing, dyeing and bleaching.

Niantic. Niantic Dyeing Co. $30,000. James E. Pike, president and treasurer. Bleaching, dyeing and finishing.

Pawtucket. Bland, John E. & Co. Bleachers of cotton goods. (S)

Providence. Cooper Mercerizing Co. Eagle St. and Kingsley Ave. $75,000. Mercerizing, dyeing and bleaching yarns.

Providence. Standard Winding Co. Winding yarns for electrical trade. Also wind on spools, cones, etc., and skeining and jack spooling.

Tiverton. Crosson, Patrick. Dyeing.

VIRGINIA.

Petersburg. Werres & Hinton Silk Dye Works. Dyers silks and velvets.

Projected Industries.

Under this head are enumerated such projects as are now in course of construction, or which in all probability soon will be, but which are not sufficiently far advanced to be properly identified in the list of new mills.

COTTON

CONNECTICUT.

New Hartford. New Hartford Textile Corporation. $30,000. Propose operating the Greenwoods Co.'s plant.

GEORGIA.

Lafayette. Lafayette Cotton Mill Co. J. E. Patton, president; F. D. Fortune, vice-president; W. A. Nichols, secretary and treasurer; E. Montgomery, general manager.

NEW YORK.

Nyack. Nyack Spinning Co. $200,000. F. C. Brayton (Nyack Knitting Co.), interested.

Pike. Textile Specialty Co. $100,000. Robert H. Peters Batavia, N. Y.), president; L. A. Mason (Buffalo), treasurer and buyer. Cotton pile fabric. 20 to 50 looms; 2 to 5 sewing machines. Bleach, steam and water. Sell direct. Expect to start building in March and operations in May, 1904.

NORTH CAROLINA.

Drexel. Drexel Spinning Co. R. B. Mull, president; J. S. Abernathy, treasurer. Yarns, 30s to 60s.

Greensboro. Young, Wm. I. (Atlanta, Ga.). Interested in company to build a plant representing investment of $500,000 to $600,000. Plain weaves and dobbies. 15,000 mule spindles and possibly 5,000 ring spindles, with complement of looms; and dye and finish plant.

Marshall. Capitola Mfg. Co. H. H. Pottle (N. Y.), interested. Adolph Suck (Boston), architect. 10,000 spindles, with looms.

Newton. Clyde Cotton Mills Co. $100,000. J. C. Smith and G. A. Warlick, interested. 10,000 spindles.

Smithfield. Holt Cotton Co. $100,000. Allen K. Smith, president; S. S. Holt, treasurer and superintendent. (S)

PENNSYLVANIA.

Reading. Reading Spinning Co. $125,000. J. J. Knoll, president; J. M. Endy, vice-president; W. C. Shantz, secretary; J. M. Acker, treasurer.

Wilkesbarre. Wilkesbarre & Wyoming Valley Lace Mfg. Co. $100,000. W. A. Banfield, superintendent. Nottingham lace curtains. 12 looms; 24 sewing machines. (S) (D) To start building as soon as all capital is subscribed, and employ about 100.

SOUTH CAROLINA.

Anderson. Gluck Mills. $50,000. R. S. Hill, president; G. B. Walton, secretary. Sheetings.

Clover. Morton Mfg. Co. $100,000. W. E. Morton, president and general manager; M. L. Smith, treasurer; Wm. P. Smith, secretary.

Gaffney. Marie Mills. $150,000. E. R. Cash (Gaffney); D. A. Tompkins (Charlotte) interested.

Liberty. Calumet Mfg. Co. $100,000. H. L. Clayton, interested. 5,000 spindles.

Wagener. Wagener Mfg. Co. $100,000. Cotton cloth. L. B. Etheredge, J. W. Baughman, interested.

TEXAS.

Corsicana. Stroud Cotton Mills Co. $25,000. T. M. Stroud and W. B. Barnes, interested.

Marble Falls. M. H. Reed & Co. Cotton mill in contemplation.

WOOLEN.

IDAHO.

Boise City. J. C. Gawthrop interested in establishing a woolen mill here.

MASSACHUSETTS.

Worcester. Percy Rug Co. M. J. Whittall, interested.

MONTANA.

Great Falls. Manchester Co-operative Woolen Mill Co. $100,000. S. H. Wood, interested.

OHIO.

Springfield. Enterprise Mfg. Co. $40,000. John McCoy, president; Dr. E. H. Smith, vice-president; John Goodfellow, secretary and treasurer. Blankets, gloves and mittens.

OREGON.

Marshfield. North Bend Woolen Mills Co. $100,000. Purchased machinery of Napa Woolen Mill (5 sets) and propose removing machinery of the Bandon Mill, Bandon (3 sets) to this place.

KNIT

CALIFORNIA.

Los Angeles. Collins, John E. 215 No. Broadway. Investigating prospects for a small hosiery mill.

GEORGIA.

Savannah. Stokes, M. A. Ladies' and men's cotton hosiery. 100 machines. Dye.
Winder. Thomas, E. Lloyd. Knitting mill proposed.

NEW JERSEY.

Dover. Yankee Girl Knitting Co. $50,000. John J. McClimont, president.

NEW YORK.

Rochester. Flint, Earle. Knit goods.

NORTH CAROLINA.

Augusta. Hodges, J. D. $12,000. Children's ribbed hosiery. Buildings erected but machinery equipment not yet installed, Oct., '03.

TENNESSEE.

Dayton. Joseph Gallagher interested in establishing a knitting mill here.

TEXAS.

Weatherford. Bowie, G. M. Interested in locating a knitting mill here.

UTAH.

Woodruff. Peter McKinnon. Interested in starting plant of one or two machines to make men's, ladies' and children's union suits, all kinds knit underwear, blankets, sweaters, hosiery, mittens, etc.

WASHINGTON.

Tacoma. Adams, Joseph D. 1341 C St. Contemplates establishing knitting mill.

SILK

NORTH CAROLINA.

High Point. Stehl & Co. (Lancaster, Pa.) Linings and tie silks.

PENNSYLVANIA.

Duryea. Dutton Silk Co. $30,000.
Erie. New silk mill proposed. Board of Trade interested in matter. $100,000 to be subscribed in Erie, the balance to be taken by N. Y. parties.
South Bethlehem. Iroquois Silk Co. (Mill to be at Alliance.) J. B. Cozzens, Geo. W. Prankard (N. Y.), interested.

MISCELLANEOUS

CANADA.

Bracebridge. Dominion Linen Mills, Ltd. $125,000. Propose equipping plant with 100 looms. Edwin J. H. Pawley interested.

Enlargements and Improvements.

This list is not, by any means, a complete record of Enlargements and Improvements, for there is hardly a mill in the country bnt what has made some changes and improvements. The object is as far as possible to enumerate the more important and such as would have a bearing on the growth of the industry.

COTTON

ALABAMA.

Cordova. Indian Head Cotton Mills Co. Replaced some old looms with 200 Draper Northrup looms.
Girard. Girard Cotton Mills. Addition built to mill and 20 more looms put in.
Opelika. Opelika Cotton Mill. Capital stock increased $50,000. Installed 3,000 additional spindles.
Roanoke. Handley, W. A. Mfg. Co. Installed 6,240 additional spindles, making total of 12,064.

CONNECTICUT.

East Hampton. Summit Thread Co. Bleaching department installed in mill.
Killingly. Attawaugan Co. Installed new Draper looms in the mill. Also put in two new boilers.
Middletown. Russell Mfg. Co. Changing Rock Fall Spinning Mill to a weaving mill. Yarn spinning being replaced with looms for narrow fabrics.
Taftville. Ponemah Co. New mill building constructed, 73x42 feet, 2 stories, brick.
Vernon. Ravine Mills. Rebuilt dye house and erected new beaming room, 40x90 feet, two stories front. Installed twisters in room formerly used for beaming.
Waterbury. American Mills Co. Addition 28x77 feet, two stories and basement built.

GEORGIA.

Columbus. Eagle & Phoenix Mills. Installed new carding, picking and spinning machinery in No. 3 mill. Also added one set woolen cards and 16 looms.
Columbus. Muscogee Mfg. Co. New mill under construction. About 14,000 spindles.
Gainesville. Gainesville Cotton Mills. Rebuilt plant damaged by tornado, and equipped with new machinery.
Hartwell. Witham Cotton Mills. Added 84 new looms to the plant and dye plant put in.
Jackson. Pepperton Cotton Mills. Attached dobby heads to looms for making towels and fancy goods.
Macon. Willingham Cotton Mills. Addition built to plant and installed 120 looms for making numbered duck and heavy canvas, 120 inches wide.
Pelham. Pelham Mfg. Co. New building erected for dye house; capacity 6,000 lbs. raw stock per day.
Quitman. Atlantic & Gulf Mills. New mill under construction and an addition to old building. Will instal about 5,000 ring spindles. Expect to have in operation during summer.
Rome. Anchor Duck Mill. Addition built to plant and additional machinery installed.
West Point. West Point Mfg. Co. Addition built, 100x80 feet, 3 stories. Installed 6,000 additional spindles and 100 looms.

KENTUCKY.

Covington. Argonaut Cotton Mills. Installed twenty-seven 40-inch revolving flat cards and other machinery.

LOUISIANA.

New Orleans. Alden Mills. New 3-story brick building, 65x75 feet, erected.

MAINE.

Biddeford. Pepperell Mfg. Co. Large addition built to carding department of the Laconia Mill.

Lewiston. Androscoggin Mill. New water wheel installed to replace a 500 h. p. engine. Also put in 200 Northrop looms.

MARYLAND.

Oella. W. J. Dickey & Sons Co. Incorporated to continue business of W. J. Dickey & Sons.

MASSACHUSETTS.

Blackstone. Blackstone Mfg. Co. Erected one-story weave shed; installed some new looms. Additional ring spinning frames put in, replacing some old mules.

Bondsville. Boston Duck Co. Installed eight new spinning frames and eight Crompton & Knowles dobby head looms in the plant. Also built addition to box room.

Boston. Union Mills. Purchased by Geo. Gaskill. Installed ten Jacquard looms for making seamless pocket with new method.

Chelsea. Boston Gore & Web Mfg. Co. An addition (wood) erected, 25x80 feet, two stories.

Easthampton. Glendale Elastic Fabric Co. Purchased American Tubing & Webbing Co.'s plant, Providence, R. I., and operate same as a branch mill.

Fall River. Conanicut Mills. New weave shed erected. Installed about 200 looms. Also made addition to picker and card rooms, 57x38 feet, two stories, and 154x56 feet, respectively.

Fall River. Luther Mfg. Co. Incorporated with capital $350,000; succeeded Robeson Mills. New addition built. Installing about 20,000 spindles, increasing to 42,000, and looms giving about 1,000.

Lowell. Appleton Co. New building four stories erected. Offices installed in same.

Northbridge. Paul Whitin Mfg. Co. Addition 300x100 feet, 2 stories, for increasing capacity of weave room to 1,350 looms. New storehouse also built.

Salem. Naumkeag Steam Cotton Co. Installing about 100 new 60-inch Draper looms. New power house built, and an 1800 h. p. engine being set up.

South Hadley. Hadley Mills, re-organization of Glasgow Mills. About $150,000 expended on refitting and enlarging the plant.

MISSISSIPPI.

McComb. McComb City Cotton Mills. Addition built to mill and 5,000 ring spindles installed.

Winona. Winona Cotton Mills. Doubling capacity of plant—present equipment 5,000 spindles and 200 looms, putting in 5,000 new spindles and 200 looms.

NEW YORK.

Cohoes. Page Mfg. Co. Purchased site and erected new mill on Saratoga St. Equipped same with 15 cards, 9 garnetts and 4 pickers.

NORTH CAROLINA.

Bessemer City. Bessemer City Cotton Mills. Installing 192 (gingham) looms. Will have total of 406 when completed.

Charlotte. Highland Park Mfg. Co. New buildings under construction; to install 30,000 spindles and 1,000 looms for making ginghams. Large electrical plant also put up, furnishing power to these and the Mechlenburg Mills.

Charlotte. Louise Cotton Mills. Installed 5,000 additional spindles, giving plant total of 25,000.

Concord. Odell Mfg. Co. Increased spindles in Buffalo Thread Mill 10,000, making total number spindles in all their mills 42,600.

Cooleemee. Cooleemee Cotton Mills Co. Increased capital stock to $1,000,000. Erected new engine and boiler houses, increasing h. p. Installed some new winders.

Cumberland. Cumberland Cotton Mills Co. New engine and boiler houses erected and two new boilers and an engine installed. Propose putting in another turbine wheel and some new winders.

Durham. Erwin Cotton Mills Co. Increased capital stock to $3,000,000 for erecting new mills.

Gastonia. Arlington Cotton Mills. Erected an additional building and installed 2,700 new spindles, giving total of 10,000.

Gastonia. Gastonia Cotton Mills. Installed 135 additional looms in plant, giving total of 270.

Gastonia. Ozark Cotton Mills. Put in 1,000 more spindles.

Gastonia. Trenton Cotton Mills. 2,000 spindles and other machinery installed in plant.

Granite Falls. Granite Falls Mfg. Co. Replaced some old machinery with 2,160 new Fales & Jenks spindles.

Gibsonville. Minneola Mfg. Co. New mill built, 296x130 feet; also picker house, dye house and boiler and engine room.

Harden. Harden Mfg. Co. New machinery, including 3,500 spindles installed in mill.

Hickory. Shuford, E. L. Mfg. Co. Addition built to mill to accommodate 10,500 spindles and 290 looms.

Hillsboro. Eno Cotton Mills. Addition built to mill and equipped with 450 looms. Make ginghams.

King's Mountain. Bonnie Cotton Mills. 3,000 additional spindles and twisters installed.

King's Mountain. Enterprise Mill. Addition built to mill. Installed 2,500 new spindles and 50 looms.

Lumberton. Lumberton Cotton Mills. Added 5,000 spindles to plant.

Mt. Holly. Nims Mfg. Co. Increased capital stock to $100,000. Addition built to mill and ring spindles increased to 4,000.

Newberry. Newberry Cotton Mills. Installed additional machinery, principally carding and spinning.

Oxford. Oxford Cotton Mills. Reorganized with capital stock increased from $125,000 to $175,000. W. A. Erwin, president.

Raleigh. Raleigh Cotton Mills. To erect an addition 40x38 feet. Will add cards, lapper and other machines.

Roanoke Rapids. Rosemary Mfg. Co. Building an addition 100x93 feet, 2 stories. Will instal about 8,500 additional spindles, although but 2,500 will be put in at first. Plant of Patterson Textile Co., operated on silk goods, will be equipped with 50 broad looms for weaving fancy cottons.

Rockingham. Leak, Wall & McRae. Midway Mills. Installed some additional spindles and 200 looms. Make heavy cotton goods.

Rockingham. Pee Dee Mfg. Co. Additional building erected, 2 stories, to No. 2 mill. Installed 2,500 spindles and 100 looms.

Salisbury. Kesler Mfg. Co. New addition built. Installed 9,000 additional spindles and 22 looms, giving plant total of 20,000 ring spindles and 250 looms.

Saxapahaw. White, Williams & Co. Erected addition 100x135 feet, 2 stories. Installed 100 looms and finishing plant.

Spray. Morehead Cotton Mills Co. Installed 4,256 additional spindles and 120 looms.

Winston-Salem. Arista Mills Co. (Consolidation Arista Mills and South Side Mfg. Co.) Added 4,480 new spindles and 210 looms.

OHIO.

Cincinnati. Railway Supply & Mfg. Co. To form new company with capital stock of $1,500,000 and erect and operate two new mills, one at Charlotte, N. C. Site of other not yet decided upon.

PENNSYLVANIA.

Chester. Birkin, T. I. & Co. Addition 60x103 feet, 2 stories and basement built to main building and one-story addition 50x33 feet to bleaching.

Chester. Irving & Leiper Mfg. Co. Added new Saco & Pettee cards, Kitson pickers and Whitin drawing frames.

Chester. Standard Spinning Co. Old machinery replaced with new slubbing and intermediate machinery and set of combers.

Clifton Heights. Colonial Mfg. Co. Removed plant from Philadelphia to building formerly occupied by Garnett Bros. Increased looms from 6 to 30. Propose installing new bleachery.

Philadelphia. American Lace Mfg. Co. Additional three-story building, 467x401 feet, erected. Also erect a one-story power plant.

Philadelphia. Landis & Allen. Wolstencroft Bldg. Damasks. To instal 6 more looms.

Philadelphia. Mawson, J. B., Hair Cloth Co. New building erected on Glenwood Ave. and removed from Coral and Dauphin Sts. to same.

Philadelphia. Wardlaw, J. & W. Removed plant from 1545 Ruan St. to new building (128x45 feet, 2 stories), 1615 Foulkrod St.

Trainer. Trainer Spinning Co. Installed nine new (Saco & Pettee) speeders.

RHODE ISLAND.

Ashaway. Ashaway Line & Twine Co. Reorganized, old stock cancelled and $30,000 of new issued. L. A. Briggs, president; G. B. Langworthy, vice-president and C. F. Randolph, secretary and treas-

urer. Purchased the Rockville Cotton Mill and operate same with O. Edwards, superintendent.
Ashton. Lonsdale Co. Installed a 1,200 h. p. engine, replacing one of 400 h. p. Replaced old spinning frames with new ones and installed a number of new looms.
Hope. Hope Co. Erected additional buildings and addition made to old. Also changes made to machinery equipment.
Pawtucket. Hope Webbing Co. New mill under construction. Narrow woven fabrics. 100 looms.
Providence. Joslin Mfg. Co. Purchased plant, Dyerville Mfg. Co., of 15,000 spindles. Looms taken out and twisters installed for spinning yarn for own use.
Rockland. Ponagansett Mill. Replaced old machinery with 10 new cards, 2 drawing frames, pickers and lapper.
Warren. Warren Mfg. Co. New buildings erected and additional machinery installed. New 1600 h. p. engine put in.
Woonsocket. National Pile Fabric Co. To instal 60 more looms.

SOUTH CAROLINA.

Anderson. Orr Cotton Mills. Additional buildings erected. New machinery consisting of 30,000 spindles and 750 looms put in, giving total of 55,000 spindles and 1,450 looms.
Cateechee. Norris Cotton Mills Co. Addition built to mill and 5,000 spindles and 100 looms added, giving total of 18,248 ring spindles and 452 looms.
Charleston. Royal Bag & Yarn Mfg. Co. Increased capital stock to $475,000. To double capacity of plant.
Clinton. Lydia Cotton Mills. Addition built; 6,000 spindles and 150 looms put in, giving total of 12,000 spindles and 300 looms.
Clover. Clover Cotton Mfg. Co. To instal 3,000 more spindles.
Easley. Easley Cotton Mills. Increased capital stock $150,000. Put in 9,000 additional spindles and 300 looms, making total of 35,642 spindles and 1,000 looms, on 3 1/2 to 6 yd. sheeting.
Fairmont. Tyger Cotton Mills. Installed 2,000 additional spindles and 80 looms in the plant.
Greenville. Monaghan Mills. Addition built. (Arrangements under way for installing 30,000 spindles.)
Hartsville. Hartsville Cotton Mills. New addition under construction; will instal 23,000 spindles and 750 looms. Expect to have in operation March 1st, with total of 35,000 spindles and 1,050 looms.
Liberty. Liberty Cotton Mills. Additional machinery installed.
Lockhart. Lockhart Mills. Capital stock increased for purpose of enlarging plant, with 50,000 spindles and 750 looms, only half of which will be installed at first.
Newberry. Mollohon Mfg. Co. Building an addition to mill, for purpose of trebling capacity (10,000 spindles) of the plant, to 33,000 spindles.
Pacolet. Pacolet Mfg. Co. Rebuilt No. 3 mill damaged by flood.
Yorkville. Tavora Cotton Mill. 1,000 additional spindles put in.

TEXAS.

Sherman. Sherman Cotton Mills. Installed 5,000 new spindles and 160 looms in plant for making domestics and cotton duck.
Weatherford. Weatherford Cotton Mills. Addition built to mill and 2,304 new spindles put in. Capital stock increased for purpose.

WISCONSIN.

Janesville. Rock River Cotton Co. New building erected, 165x20 feet, four stories, for bleaching purposes.

WOOLEN

CONNECTICUT.

East Killingly. Young, B. C. Rebuilt shoddy plant burned, with building 42x44 feet, 2 stories. Installed 12 machines and 2 power presses.
Hanover. Airlie Mills. An addition 25 feet, 2 stories, built and new picker house, 54x45 feet, one story.
Norwich. Reliance Worsted Co., Woonsocket, R. I. Bought business of the Leinbach Woolen Co. and purchased car shop and remodelled same, removing Woonsocket plant there. Propose running 10 sets of cards and 60 looms, with dye and finishing on woolens and worsteds.
Somerville. Somerville Mfg. Co. Erected new storehouse, 144x75 feet, brick. Also added two sets cards.
Stafford. Riverside Woolen Co. New boiler house erected and new boilers installed.

DELAWARE.

New Castle. Fort Casimir Woolen Mills, Inc. $100,000. Geo. G. Knowles, president; Eugene LaGrove, vice-president; James E. White, superintendent. (Operating plant of J. G. Knowles Woolen Co.) Installed 50 new looms and 8 sets cards. Also shoddy pickers. Built new carbonizing plant, dry process.

INDIANA.

LaPorte. Samuel Fox's Sons. Built addition to mill; installed wool washer and some dyeing and finishing machinery.
Evansville. Evansville Woolen Mill Co. Installed 12 broad looms in plant.

KENTUCKY.

Louisville. Hope Worsted Mills. New mill erected, 200x80 feet, 3 stories and basement.

MAINE.

Corinna. Greenwood, C. A. Rebuilt plant destroyed by fire.
Madison. Madison Woolen Mills. New water wheel put in; replaced wooden flumes with stone, and repaired wheel house building. Also put in two sets cards.
North Berwick. North Berwick Co. New dye house built.

MARYLAND.

Baltimore. Maryland Woolen Co. Installed new set of cards in the mill, also new napper and spooler.

MASSACHUSETTS.

Auburn. Hogg Carpet & Mfg. Co. Incorporated with capital stock of $1,500,000; acquired Hogg Mfg. Co.'s plant. Contemplate increasing.
Cherry Valley. Chapel Mills Mfg. Co. Increased capital stock to $100,000. Purchased Bottomly Mill from A. W. Darling. Operate same as "Bottomly Dept." on meltons and overcoatings.
Cherry Valley. Geo. W. Olney Woolen Co. Addition built to weave room; 12 new looms installed. Also constructed new flume.
Fitchburg. Star Worsted Co. Addition of 50 feet made to the plant; installed 11 spinning frames; 3 twisters; 2 cards and comb each and set of drawing.
Gleasondale. Gleason, A. D. Addition 75x40 feet, 2 stories, built to mill.
Globe Village. Hamilton Woolen Co. New dye house erected, 35x75 feet, one story, brick.
Holliston. Darling, A. W. (Cherry Valley). Reported purchased Holliston Mill of Damon Mfg. Co.
Hudson. Hudson Blanket Co. Golden Fleece Mills. Erected new mill building and removed plant from Auburn, N. Y.
Lowell. Bigelow Carpet Co. Plans prepared for another new mill.
Pittsfield. Guerin Spinning Co. (Woonsocket, R. I.) Woolen and merino yarns. (Leased Pittsfield Mfg. Co.'s mill.)
Quinapoxet. C. G. Wood & Co. Enlargement made to all the departments in the mill.
Spencer. Spencer Woolen Mfg. Co. Incorporated with capital stock of $100,000, to operate A. L. Taft's mill. A. L. Taft, president and treasurer.
Webster. Slater, S. & Sons. Installing 5 additional sets cards in mill.
West Stoughton. Stoughton Mills. Rebuilt carbonizing plant, destroyed by fire.
Winchester. Bacon Felt Mill. Rebuilt plant destroyed by fire; capacity of old mill doubled.

MICHIGAN.

Clinton. Clinton Mfg. Co. Installed 3 additional sets cards and 15 looms in the mill. Also made other improvements to carding and spinning departments.
Sault Ste Marie. Petosky Rug Mfg. Carpet Co., Ltd., Petosky. Erected new three-story building as branch mill.

NEW HAMPSHIRE.

Bristol. Dodge-Davis Mfg. Co. Added 10 looms and some wool scouring machinery to equipment.

Gonic. Gonic Mfg. Co. Addition 50x80 feet, 2 stories, brick, to wool sorting and scouring department; also addition 50x80 feet, 1 story, to finishing department.

Penacook. Dustin Island Woolen Mills. Installed two additional looms in plant; also built an addition to dyehouse.

NEW JERSEY.

Newark. Basch & Greenfield. New two-story mill erected 100x50 feet. Installed carbonizing machinery, increasing capacity of plant to 10,000 lbs. daily.

NEW YORK.

Binghamton. Binghamton Felting Co. Extension built to the mill. Installed additional machinery. About $40,000 expended on improvements.

Lestershire. Faatz-Reynolds Felting Co. New building erected, 100x86 feet, 4 stories, for manufacturing felts exclusively.

Marcellus. Crown Mills. Built an addition to No. 1 Mill, 108x48 feet. Carding and other machinery put in. Also erected new boiler house and installed three new boilers.

Stottville. Stott Woolen Co. Installed 24 additional looms.

Utica. Globe Woolen Co. Installed 50 more looms in the plant.

Utica. Mohawk Woolen Mills. Purchased machinery of the Rumford Falls (Me.) Woolen Mill.

Waterloo. Waterloo Woolen Mills. Installed 20 new looms in the mill.

West Park. Northern Wadding Co. Purchased carding machinery formerly used in Titus Mills.

OHIO.

Piqua. Orr Felt & Blanket Co. New addition, 45x65 feet, 4 stories, built. Installed 2 sets cards, 6 (large) looms, 3 (240 spindle) looms, drying and other machinery.

OREGON.

Union. Union Woolen Mills. Increased capacity of plant. Added 5 fancy Knowles looms, wool scouring machine, picker and elevator.

PENNSYLVANIA.

Bristol. Steel, Edward T. & Co. New building erected, 125x120 feet, 2 stories. Added 40 Knowles looms.

Carlisle. Beetem, E. C. & Co. Installed ten (10) new looms in the mill.

Chambersburg. Chambersburg Woolen Co., Bristol. An addition 40x50 feet, 2 stories, brick. First floor used for wareroom; second, manufacturing purposes.

Conshohocken. Merion Worsted Mills. Additional story built to mill. To erect new office building, also.

Honesdale. Birdsall Bros. New addition, 40x54 feet. 4 stories. Additional machinery put in.

Lenni. Brown's Sons, Geo. (Mount Joy, Pa.) Purchased the Parkmount Mills, and operate as branch mill. Made alterations and additions to same.

New Cumberland. Susquehanna Woolen Co., Inc. Doubled spinning and yarn capacity and installed additional looms. Also put in new wool washing and drying machinery.

Norristown. Watt, William & Son. New building, 80x30 feet, 4 stories and basement. Installed 1 additional set cards, 2 mules and 6 looms.

Philadelphia. Bromley, James & Geo. D. Adams and Jasper Sts. Three-story addition, 54x113 feet erected.

Philadelphia. Bromley, John & Son. Lehigh Ave. and A St. New addition 150x60 feet, brick, 3 stories, to be erected. Also new dyehouse, about 60x75 feet.

Philadelphia. Dornan Bros. New building erected 116x60 feet, 4 stories and basement. For storage purposes.

Philadelphia. Hamilton, John & Sons. Hope and Huntingdon Sts. New addition. Installed 20 additional looms.

Philadelphia. Lodge, J. F. & Son. Hart Lane. New mill erected 122x42 feet, 3 stories and picker house, 42x72 feet, 1 story and basement.

Philadelphia. Rost, Karl. Rag carpets. Patented loom for manufacturing tapestry carpets.

Philadelphia. Saxonia Dress Goods Mill. Howard and Palmer Sts. Enlarged building three stories, making it six stories.

Philadelphia. Sterling Carpet Mills. Built two-story building 100x72 feet. Will make an addition to boiler house.

Philadelphia. Werner, Ferdinand. New mill building to be erected, 102x72 feet, 5 stories.

Philadelphia. Williams, John Mfg. Co. Leased mill and loom of Abbott Mfg. Co., 618 No. 24th St., 96 looms, and operate as an auxiliary mill.

Philadelphia. Yorkshire Worsted Mills. Cotton and worsted goods. Contemplate enlarging plant and installing 40 additional looms.

RHODE ISLAND.

Davisville. Davisville Woolen Co. Organized to operate plant formerly run by Reynolds Mfg. Co. Changed all the machinery from one mill to another, so that carding and spinning and weaving and finishing are in separate plants.

Olneyville. Earnscliffe Mill. Two-story brick addition built for finishing. Dyeing facilities of plant increased also.

Olneyville. Pocasset Worsted Co. Purchased mill formerly occupied by Lawton Spinning Co. Equipped with combs and operated in conjunction with other plant; capacity, million and a half lbs. top a year.

Pascoag. Sayles, F. L. & Co. New dyehouse erected, 140x40 feet, 2 stories, brick.

Peace Dale. Doane Worsted Mill. Edward & John Doane. Added 5 new looms to the plant.

Woonsocket. Lafayette Worsted Co. Built an addition, 140x70 feet, 1 story, to the mill.

VERMONT.

Ludlow. Black River Woolen Mill. Built an addition 70x20 feet, to mill. Added one set new cards and some spinning machinery.

Winooski. American Woolen Co. New boiler house built and new boilers put in. Replaced engine with new one.

WISCONSIN.

Onalaska. Onalaska Woolen Mfg. Co. Putting in small knitting plant. Expect to make wool socks, 2 to 4 lbs. to dozen.

NOVA SCOTIA.

Oxford. Oxford Woolen Mills. New mill erected 202x58 feet, 2 stories. Part of the old plant used for storing wool.

ONTARIO.

Almonte. Golden Fleece Woolen Mills. Added set new cards, two 220 spindle mules, looms and finishing machinery.

Dundas. Empire Carpet Co. Formerly at St. Catherines. Taken building formerly occupied by Ontario Felt Co. Equipped plant with new machinery.

Elmira. Elmira Felt Co., Ltd., The. Addition 100x50 feet, 2 stories, built.

Guelph. Guelph Carpet Mill Co. Addition built. Added eight new carpet looms. Installed an electric lighting plant. Also built boiler house, installed two 115 h. p. boilers and a 115 h. p. engine.

Markham. Maple Leaf Woolen Mills Co. New dye house erected and considerable new machinery put in.

Toronto. Toronto Carpet Mfg. Co., Ltd. Capital stock increased to $300,000. New addition under construction; will add 50 new looms. Expect to have in operation in April.

KNIT

ALABAMA.

Sylacauga. T. J. Mathews, proprietor Marble City Hosiery Mills. Installed machinery for making yarn for own use.

Talladega. Talladega Hosiery Mills. Put in ten new knitting machines and dyeing machinery for dyeing yarns.

CALIFORNIA.

San Francisco. Gantner & Mattern Co. Removed to large three-story building. Installed number of modern knitting machines.

CONNECTICUT.

Naugatuck. Dunham Hosiery Co. Addition 25x30 feet.

GEORGIA.

Barnesville. Gem Knitting Mill. Added bleachery, capacity 3,000 to 4,000 lbs. per day, to the plant. Also put in some additional knitting machinery.

Barnesville. Oxford Knitting Mills. Capital stock increased. Addition built and increased machinery equipment.

Grantville. Grantville Hosiery Mills. Addition 48x56 feet, one story; installed some additional machinery.

Marietta. Marietta Knitting Co. Installed 20 additional machines and a 100 h. p. engine.

ILLINOIS.

Chester. Royal Knitting Co. Installed 25 "Acme" full automatic hosiery machines.

Chicago. Paramount Knitting Co. Increased capital stock from $100,000 to $200,000.

MASSACHUSETTS.

Pittsfield. Musgrove Knitting Co. Installed 10 additional knitting machines and one sewing machine in the mill.

Shelburne Falls. Orange Knitting Co. Installed additional machines in mill.

Worcester. Aetna Knitting Co. Installed new set cards and additional knitting machines.

MICHIGAN.

Grand Rapids. Grand Rapids Felt Boot Co. Large addition, three stories, built.

Muskegon. Amazon Knitting Co. Installed 10,000 spindles for spinning yarn. Expect to have running in February or March. Discontinued manufacture of gloves and mittens, devoting plant to hosiery and underwear.

Pontiac. Pontiac Knitting Co. New addition built and about 100 new knitting machines installed.

MINNESOTA.

Minneapolis. Nelson Bros. Knitting Works. To move into new building. To instal large number of improved German knitting machines.

NEW HAMPSHIRE.

Laconia. Holt Mfg. Co., F. L. Installed new knitting machinery.

Nashua. Hitchcock & Curtis Knitting Co. (Hartford, Conn.). Secured Baker Knitting Mill and operate same as branch plant.

NEW JERSEY.

Bayonne. Bayonne Knitting Mills. Extension built to the mill and 12 additional machines installed.

Beverly. Beverly Underwear Co. (formerly McIlvaine Knitting Mill Co. Alban Spooner, president. Will increase line of knit goods.

Beverly. Birkhead, Turner. Rebuilt plant wrecked by boiler explosion.

Delanco. Star Knitting Mills. Charles Barnitz. Installed 12 new Mayo machines and a new steam press put in. Will erect an addition 60x20 feet in the spring.

Riverside. Dick, Christian. Installed additional machinery in mill.

NEW YORK.

Amsterdam. Harrower, L. E. An addition built to the Star Mill.

Broadalbin. Broadalbin Knitting Co. New addition, 24x52 feet, 3 stories, erected for storeroom and installation of additional machinery.

Brooklyn. Ragosin, Samuel. Installed one set 60 in. cards for making knitting yarns for own use.

Cohoes. Star Knitting Co. Installed 12 Scott & Williams frames for manufacturing men's wool ribbed goods, in addition to regular lines.

Fultonville. Sovereign Knitting Co. Removed plant from Amsterdam.

Greenwich. Gordian Mesh Underwear Co. Removed plant from Matteawan.

Manlius. Clark Textile Co. (Sidney, N. Y.) Established branch mill here. Ladies' woven tip silk gloves. 75 sewing machines.

New Hartford. Maxwell Mfg. Co. New building, 45x85 feet, 4 stories, under construction. Will utilize one room for finishing; another cutting. New machinery will also be installed.

Oneida. Oneida Hosiery Co. Installed nine Hemphill automatic seamless hosiery knitting machines in mill.

Oriskany Falls. Utica Knitting Co. Installed 50 latch needles in No. 3 Mill.

Owego. Kayser, Julius & Co. (Brooklyn, N. Y.). Established branch mill for finishing.

Poughkeepsie. Lindenwald Mills. New building erected for stock and shipping. Added new machinery, including 12 knitting machines.

Sherburne. Canasawacta Knitting Co. New office building erected and new dye house. Also installed new boiler in boiler house put up.

Utica. Athletic Knitting Co. and Utica Hosiery Co. Increased capacity by erection of additional building and machinery.

Utica. Utica Knitting Co. Installed two new sets 60 inch cards.

NORTH CAROLINA.

Durham. Durham Hosiery Mills. Capital stock increased. New building erected and about 400 new knitting machines added.

Newton. Newton Hosiery Mill. One-story addition built, making main building three stories. Sixty additional knitting machines put in.

Raleigh. Melrose Knitting Mill. Ribbed underwear. Building addition, to be completed in April.

Valdese. Carpenter, D. J., of Newton. Purchased the Valdese Hosiery Mill and operate same in connection with Newton plant, making gray half and ladies' hose, all heavy weights. Additional machinery installed.

Weldon. Weldon Cotton Mfg. Co. Addition built and capacity increased from 250 to 400 dozen per day.

OHIO.

Toledo. Loth, Jos. Co. Enterprise Knitting Mills. New building erected, 118x40 feet.

PENNSYLVANIA.

Annville. Kreider, A. R. & Co. An addition built to mill, increasing about one-half. 30 h. p. boiler installed. Propose adding 10 new machines.

Avon. Light & Bomberger. Contemplate installing 12 or 15 more ribbers and several knitting machines for making misses' hose.

Blain. Perry Knitting Mill. Rebuilt plant destroyed by fire.

Birdsboro. Birdsboro Knitting Co. Rebuilt plant destroyed by fire. Main building 20x60 feet, 2 stories, separate boiler and engine room.

Cardington. Cardington Hosiery Mills. Added 5 machines, giving plant total of 20.

Clifton Heights. Crawford & Quinn. New dyehouse built.

Coopersburg. Gabriel's, Henry, Sons. (Branch Mill.) Leased plant previously occupied by M. B. Bergey & Co. Fine gauge goods. 53 latch needle knitting machines. (Main mill at Allentown, Pa.)

East Stroudsburg. Kistler, A. W. & Bro. A new dye house built and addition made to mill. Installed additional machinery.

Harrisburg. Harrisburg Knitting Mills. Installed 13 new knitting machines. Will add 25 more.

Hazleton. Wilde & Co. Erected new mill, 110x66 feet, 2 stories, with power house, 66x15 feet. Installed additional machinery.

Hellertown. Brookdale Underwear Co. (Rebuilt plant destroyed by fire.) Women's, children's and infants' ribbed cotton goods. 16 knitting and 30 sewing machines. (S)

Lykens. Duncan, Walter & Co. New addition, 80x28 feet, equipped with 42 knitting machines.

Norristown. Shannon, Daniel. Women's and misses' cotton hosiery. Added 20 Mayo machines.

Philadelphia. Ackerman, William A. & Bro. Mascher and Oxford Sts. Children's and misses' hosiery. Put in 20 additional machines.

Philadelphia. Brownhill & Kraemer. 1214-20 Crease St. Added 20 Standard machines.

Philadelphia. Charter Hosiery Mfg. Co. 5155 Wakefield St. Rebuilt plant destroyed by fire. Installed a number of new round frames and Victor machines for fancy goods.

Philadelphia. Economy Hosiery Mills. Removed to larger quarters at 1845-47 Hazzard St. Added several new Victor machines.

Philadelphia. Koch, Justus. 1051 Frankford Ave. Athletic goods, etc. Added 20 flat and round machines.

Philadelphia. Miller & Son. 3839 Reno St. Added dye house; dye fast black on hosiery and yarns for trade also.

Philadelphia. Reuther Knitting Co. American and Diamond Sts. Added 5 new McMichael & Wildman machines; also 6 sewing machines.

Philadelphia. Roseleaf Mfg. Co. Contemplate removing to larger quarters and installing additional machinery.

Philadelphia. Standard Hosiery Co. 1310 Lawrence St. Increased capacity of plant; added 48 knitters; 32 ribbers and 4 loopers.
Philadelphia. U. S. Knitting Mills. To remove to larger quarters. Will add 25 new Lamb & Grosser machines and Union Special Buttonhole machines.
Robesonia. Sheeler, H. W. I. X. L. Mills. Half hose. Added 16 new "Boss" knitters.
Wernersville. Cain, J. Ulysses. Added 10 more machines.
Williamstown. Durbin, J. W. & Sons. Brick addition built, 45x60 feet, to mill.
York. Black, Joseph & Sons. To erect new mill in the spring.

SOUTH CAROLINA.

Blacksburg. Blacksburg Spinning & Knitting Mills. Added ten machines.
Jonesville. Jonesville Knitting Mills. Installed 100 new full automatic knitting machines and 3,500 spindles, giving total of 7,000 spindles and 200 full automatic machines.

TENNESSEE.

Knoxville. Standard Knitting Mills. Installed 5 new Scott & Williams knitting machines. Also put in a 6 roll dye machine.
Lenoir City. Dixie Hosiery Mills. Installed a 150 h. p. engine in plant and added 2,000 spindles for purpose of manufacturing own yarn.
Morristown. Wood, J. L. Co. Added ten more machines.
Nashville. Nashville Hosiery Mills Co. Reorganization of Nashville Hosiery Mills. J. H. McPhail, buyer. Built addition 30x100 feet to dye house. Also installed additional machinery.

UTAH.

Ogden. Utah Knitting Works. Expect to add from 10 to 15 more machines.

VERMONT.

Brattleboro. Brattleboro Mfg. Co. Reorganized. Succeeds Brattleboro Hosiery Co. Capital stock, $50,000. Enlarged plant.

WISCONSIN.

Appleton. Crescent Knitting Co. Installed about twelve new knitting machines.
Kenosha. Cooper Underwear Co. Built new mill and equipped with machinery for making men's wear, cotton and woolen. Three sets cards installed for making yarns for own consumption.

ONTARIO.

Almonte. Anchor Knitting Mill. Increased capital stock from $50,000 to $150,000.
Inglewood. Graham, D. & Sons Co. Rebuilt and equipped plant destroyed by fire in February.

SILK

ILLINOIS.

Chicago. Mansure, E. L. Co. An addition, two stories, made to plant. Also purchased portion of the Saranac Mills, Philadelphia, and made improvements to same.

CONNECTICUT.

South Manchester. Cheney Bros. Various additions and improvements made to plant, including erection of an addition 58x60 feet, one story, to dye house, and motors installed in spinning department.

NEW JERSEY.

Carlstadt. Scharg Bros. Three-story addition erected.
Haledon. Columbia Ribbon Co. Rebuilt plant destroyed by fire.
Little Falls. Fogle & Killin. Removed plant from Paterson, N. J., and increased looms to 222.
Paterson. Helvetia Silk Co. Addition 142x50 feet, erected.
West Hoboken. Schwarzenbach, Huber & Co. Remodeled building formerly used for storage, as dye house; will do their own dyeing and finishing.

NEW YORK.

Amsterdam. Amsterdam Silk Mills. Erected an additional building 100x25 feet. Installed new and improved sewing machines.
Chadwick's. Standard Silk Co. (Phillipsburg, N. J.) Branch mill. Secured plant formerly operated as Chadwick Cotton Mill. Equipped as throwing plant.
Whitehall. Champlain Silk Mills. Erected brick wash house, 64x34 feet.

PENNSYLVANIA.

Archbald. Klots Throwing Co. (Branch mill.) Commission throwing. (Main plant at Carbondale.)
Catasauqua. Wahnetah Silk Co. Installed 100 looms for making broad silks. Discontinued making corduroys.
Lansdale. Lanza Silk Co. New addition built, 22x65 feet, for boiler, engine and finishing rooms and office addition. Added about 15 new looms to mill equipment.
Lebanon. Miller & Ward. Manufacturers black taffetas and dress silks, to build a two-story brick addition, 190 feet, in March, for weaving purposes.
Lenni. Victoria Plush Mills. (Swarthmore.) Equipped West Branch Mill of the Rhodes Estate for manufacturing plush.
Mauch Chunk. Mauch Chunk Silk Co., Ltd. Capital stock increased to $50,000. Addition built to mill and additional spindles installed increasing from 3,000 to 10,000.
Nanticoke. Storms, A. L. & Co. New building erected here. Plant removed from Weissport. Purchased plant of Chas. Horn Co., Titusville, and have total equipment of 8,000 spindles.
Philadelphia. Fretz, S. S. Mfg. Co. 10th and Diamond Sts. To put in a dye plant.

RHODE ISLAND.

Central Falls. Wilkinson, Seth. New building erected, 120x40 feet, 2 stories. (Plant removed from Pawtucket.)

MISCELLANEOUS.

CONNECTICUT.

Sterling. Sterling Dyeing & Finishing Co. New drying system installed.

ILLINOIS.

West Pullman. Page Shade Cloth Co. Installed plant for dyeing, bleaching and finishing.

MASSACHUSETTS.

Fall River. Fall River Bleachery Co. Extension 115x65 feet, 2 stories, made to bleach house.
Lawrence. Lawrence Dye Works Co. New three-story addition built; yarn spooling on top floor; gray cloth stock room second and lower floors; addition to dyeing department.

NEW JERSEY.

Paterson. Formanns, Stumpf & Co. New building, 200x65 feet, 2 stories, under construction for purpose of increasing business. Contemplate having completed Feb. 1st.

NEW YORK.

Auburn. Columbian Cordage Co. New mill built, 3 stories high, with two wings, each 2 stories, for storage purposes.
Binghamton. American Fabric Printing Co. $25,000. (Purchased plant of Binghamton Fabric Printing Co.) Plant enlarged.

NORTH CAROLINA.

Wilmington. Willard Bag & Mfg. Co. Replaced plant destroyed by fire with new building.

PENNSYLVANIA.

North Wales. Asbestos Fibre Spinning Co. Incorporated, with capital of $35,000, to take over business of Fibre Spinning Co. Buildings enlarged by addition 20x75 feet, and special machinery installed.
Philadelphia. Campbell, John J. S. E. corner Fourth and Somerset Sts. Extensive improvements made. Installed latest dyeing and finishing machinery for piece goods.
Philadelphia. Westmoreland Dye Works. Richardson, Weir & Co. New dye house, 80x30 feet, 2 stories, brick.
Philadelphia. Fitler, E. H. Cordage Works. Installing nine new boilers. New building erected.
Philadelphia. Greenhalgh Bros. Contemplate putting in a dye plant.
Philadelphia. Keystone Fast Black Dye Works. John Boston, proprietor. Jasper and Westmoreland Sts. Installed two new oxydizing machines.
Philadelphia. Firth & Foster Co. Emerald and Adams Sts. Three-story addition, 60x50 feet, under construction and other buildings remodelled.
Sunbury. Susquehanna Silk Mills. Addition to mill for dyeing and finishing goods in the mill.
Reading. Liberty Dye Works. Added a third floor to main mill, 40x80 feet, with annex, 40x80 feet. Also built new boiler house.
Scranton. Scranton Yarn Finishing Co. Built large bleach house adjacent to their dye plant.

THE COTTON BOLL-WEEVIL.

Fort McKavitt, Menard County, Texas,
Nov. 30, 1903.

Editor Textile World Record:

Concerning the boll-weevil pest, I am sorry to say I can give you no information beyond the fact that such a pest exists in our state, and that it appears to be spreading more and more throughout our cotton-growing districts, and that it is believed by many it will extend into all parts of the United States where cotton growing is carried on, and will finally put a stop to this very important branch of our agricultural industry; but, I am pleased to say, I do not share this opinion.

The Legislature of our state has voted an appropriation of $50,000 as a reward to any one who will invent a remedy to counteract the ravages of this destructive little insect, and a committee has been appointed to investigate the merits of such remedies as may be recommended, of which a great many have been presented, but up to the present time, none have been considered of a practical nature.

It is the opinion of Mr. Wilson, our very able Secretary of Agriculture, that it will be as difficult to eradicate the boll-weevil as it would be to destroy our house-fly, or any of our common insects, and I am inclined to think his judgment is correct.

The planting of early-maturing cotton appears to be the most popular remedy, and it is not unlikely that something may result from experiments that are now being made in this direction, though I fear it is very doubtful.

My personal opinion is that this weevil has been in Western Texas for many years, and has only recently drifted into the prairie districts of our state where they have been so very destructive to cotton; and, I believe, the only practical means for removing the evil will be to stop raising cotton in these districts until the insect has been starved out.

My observation has been that, wherever there is a growth of live-oak, shin-oak, or any of the acorn-bearing timber, this weevil does not trouble cotton to any extent, which leads me to think it is not a cotton weevil by nature.

We have a large quantity of this class of timber in this section of our state, and we have grown cotton successfully for the past fifteen years, and have had the weevil all the time.

It is quite common to see the ground, under our live-oak trees, literally covered with green acorns that have been punctured by the weevil in the same way, and at the same season of the year that, I understand, they puncture the cotton boll. Our cattle, sheep, goats and hogs, as well as wild fowls, feed on these acorns as fast as they drop, which destroys the egg that has been deposited by the weevil, and this has a tendency to keep them from increasing to any great extent.

I am confirmed in this latter opinion by the fact that, in some sections where they have the acorn growth, and have a hog-law, which compels the owner to keep his hogs in an enclosure, the weevil is very troublesome to both acorns and cotton.

All who have examined the weevil we have here say it is exactly the same as the cotton weevil, except as to size, and that ours is somewhat the larger. This would go to prove that the insect is not so well adapted to cotton as to acorns, and have only resorted to cotton in the prairie countries because they have no acorns to feed on.

Of course this is all theory, and it will be some time before we can arrive at any conclusion as to how to deal with this very important matter. I have no doubt it will have a tendency to keep our crops of cotton down for some years to come, but I am quite sure it will not result in such a complete destruction of the planting of cotton as many profess to believe.

The larger part of our cotton-growing districts, not only in Texas, but in other states as well, have a growth of acorns, and, if the theory I have advanced is a correct one, I am quite sure the trouble will not extend beyond the prairie districts of our state, provided they will permit the hogs to run at large in the forests, to keep the insect from hatching its eggs.

WM. L. BLACK.

It is said that the silk worm was first rendered serviceable to man in China about 2,700 years before the Christian era.

French Worsted Spinning.

VI.

BY A FRENCH TEXTILE ENGINEER.

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TWIST.

The number of turns of twist per inch given to yarn depends upon the fineness of the yarn and the use to which it is to be put, whether for warp, filling or knit goods. For the same kind of yarn, warp for example, the twist depends wholly upon the size or count of the yarn, increasing as the count grows higher and in proportion to the square root of the count. Thus the number of turns of twist per inch is expressed by the following formula:

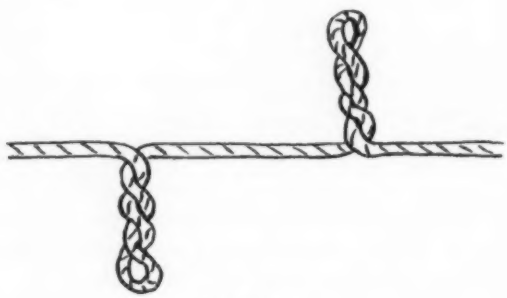


FIG. 20.

C × square root of No.

C represents a constant number whose size depends upon the kind of yarn. In practice this constant varies between 1.3 and 2.4. Following are the constants used for the principal varieties of worsted yarn, the number of the yarn being based on the English worsted system of 560 yards per pound:

Soft filling and knitting yarn, turns per inch, 1.3 times square root of No.

Ordinary filling, turns per inch, 1.7 times square root of No.

Yarn for doubling and twisting, turns per inch, 1.9 times square root of No.

Warp, medium twist, turns per inch, 2.1 times square root of No.

Ordinary warp, turns per inch, 2.4 times square root of No.

Ex. Find the number of turns of twist per inch in No. 36 ordinary filling yarn.

1.7 × 6 (square root of 36) = 10.2 turns per inch.

The turns of twist for other counts and other kinds of yarn are calculated in the same manner by using the respective constants given in the above table.

SUPPLEMENTARY OPERATIONS TO SPINNING.

Strictly speaking, the manufacture of yarn ends with the spinning process, but there are a number of supplementary operations as follows:

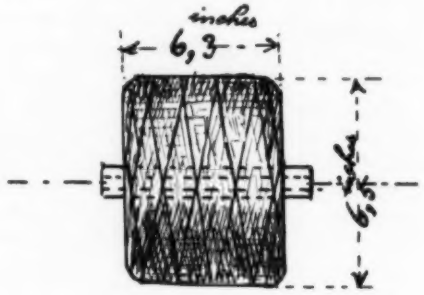


FIG. 22.

1, Steaming; 2, Doubling; 3, Twisting; 4, Reeling; 5, Packing.

STEAMING.

The object of steaming is to remove the tendency of the yarn to kink, that is, to become twisted into small ringlets as shown at Fig. 20. These kinks often remain in the yarn after it has been woven into cloth and cause defects which are removed with much difficulty. Kinks are caused by the twist of the fibres, which causes a tendency of the yarn to untwist. This arises from the elasticity of the fibres and the tension under which they are brought when the single thread is twisted. By kinking, the thread dilates and loses its twist. The two single threads forming the kink are always twisted in a direction the reverse of the twist in the single thread. Thus the kink is composed of

two threads each having less twist than before it was kinked. The kink is, therefore, in a state of equilibrium toward which the single strand constantly tends. It is evident that the harder a yarn is twisted the greater will be the tendency to kink. This phenomenon is familiar to every mill operative.

The only means thus far found for overcoming the tendency of yarn to kink is exposure to steam at a temperature of about 140 deg. F. Under the influence of steam and heat the tension of the wool fibres is relaxed and the yarn can then be drawn from the bobbins without danger of kinking. Steaming also has the advantage of making the yarn smoother and less shaggy, although it causes a slight decrease in the strength.

Wool absorbs a certain amount of moisture during the steaming process which is retained; 16 per cent of the weight of the steamed yarn is water. This cannot be removed except by exposing the yarn to a current of hot air. As soon as the wool thus dried is exposed to ordinary atmospheric conditions it absorbs moisture from the atmosphere and at the end of several days its weight will be found to consist of from 10 to 14 per cent. of water, varying with the amount of moisture in the atmosphere. If the wool, after being dried in the oven, is placed in the spinning room it will regain the normal amount of moisture in a few hours because the hot saturated air of the spinning room contains about four times as much moisture as is found in cold air saturated with moisture. As a consequence wool will absorb as much moisture in the spinning room in one day as it will absorb in a cold conditioning room in four days. The final result, however, is the same in both cases, and eventually the wool will be found to have absorbed moisture to the amount of 16 or 18 per cent. of its weight, whether exposed to the air of the spinning room or conditioning room. By 16 to 18 per cent. is meant that 100 pounds of the weight after the moisture has been absorbed will contain 16 to 18 pounds of water.

Yarn is usually steamed in air tight chambers built in masonry. The bobbins are placed in zinc or hard cardboard boxes, or in baskets, which are in turn placed on shelves made of slats. After closing the doors steam is introduced into the room till the air is almost entirely forced from the chamber through the exit left for that purpose. The exit is then closed and the steam pressure shut off. Under these conditions the steam thoroughly penetrates the yarn on the bobbins. This penetration could not be affected if air was present in the yarn. At the end of about an hour the doors are opened and air allowed to enter the room.

DOUBLING.

Doubling consists in winding a number of single strands of yarn on a large bobbin or spool without twisting them. These bobbins each contain a large quantity of yarn and are placed in the rack of the twister; the threads that have been doubled are then twisted together.

In most cases spun yarn is afterward doubled and twisted, the greater part of men's wear and ladies' goods being composed of two or more ply yarn. For worsted knit goods, passementerie and embroidery yarn, from three to eight-ply yarn is used.

The operation of doubling previous to twisting may be omitted, in which case the strands that are to be doubled are drawn direct from the spinning bobbin. During recent years the practice of twisting direct from the spinning bobbin has been greatly extended as it dispenses with the labor and expense incident to doubling, but in spite of the many improvements that have been made in twisting it is not possible to do such good work as when the yarn is doubled previous to twisting. At present probably one-half of the spinners in Europe still prefer to double the yarn preparatory to twisting it. They claim, and we think with good reason, that doubling enables the work of twisting to be done to better advantage and increases the quantity as well as the quality of the yarn. If the yarn has not been previously doubled and is twisted direct from the spinning bobbin, it is necessary to use a stop motion for each end of the twister. This greatly complicates the work and makes it impossible to run the spindles at as high a speed on account of the numerous stoppages resulting from the breaking of the single strands entering

the machine. If the yarn is doubled this inconvenience disappears.

The doubler is a very simple and inexpensive machine and capable of a very large production. While the speed of the yarn on the ring spinning frame cannot exceed 13 to 16 yards per minute because of the limited speed of the spindles on the one hand and the difficulty of splicing at a high speed on the other, the doubler, having no spindles and having only to transform the yarn from the spinning bobbins to a large bobbin or spool, can be easily brought to the high speed of 110 yards per minute. In other words the speed of the yarn on the doubler is eight times that on the ring spinning frame.

The production of a modern doubler, such as that of Ryo-Catteau, shown at Fig. 21, per day of ten hours varies from 4 pounds of No. 30 yarn to 13 pounds of No. 10 yarn per head. Thus a doubling machine of twenty heads, that is to say forming twenty bobbins, will measure 15 feet in length and produce from 88 to 264 pounds of yarn per day of ten hours for numbers between 30 and 10. In order to reduce the hand labor of twisting, the bobbins on the doubler are made as large as possible. Fig. 22 shows a doubler bobbin; the layers are parallel to the axis of the bobbin, the latter being without heads. The yarn is wound with a quick traverse so as to cross the yarn well on the spool, as is done in winding the sliver in the preparatory processes. The wooden tube measures one inch, and the full bobbin 7 inches in diameter, the length being 5 inches. The yarn on such a bobbin has a volume of about 180 cubic inches and weighs approximately 2 1/2 pounds. It takes about four hours to form this bobbin on the doubler and it will require from 16 to 24 hours or about two days to twist it on the twister. From this it will be seen that very few splicings are necessary on the twister when the yarn has been previously doubled.

(To be continued.)

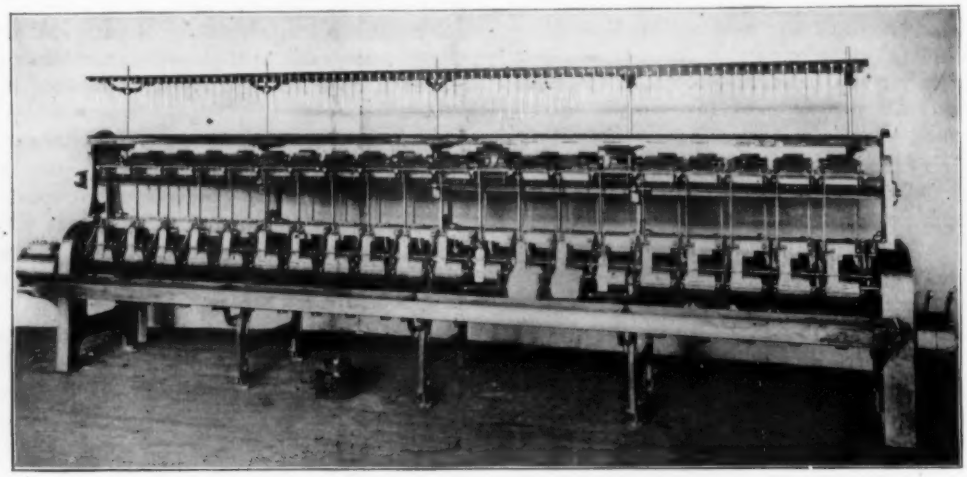


FIG. 21. THE RYO-CATTEAU DOUBLER, SOCIETE ALSACIENNE DE CONSTRUCTIONS MECHANIQUE.

COMMON SENSE AS TO COTTON AND COTTON MILLS.

The following letter on the present situation in the cotton fields and cotton mills was recently published in the Charleston (S. C.) News and Courier:

The old farmer was nearly right when, after hearing cotton experts discuss the price of the staple, very wisely he said: "Gentlemen, you may say what you please, but you may always depend on cotton being a fool." Many cotton buyers found that out long before there were any mills in the South, and years before there were factories and a Cotton Exchange. It was not unusual sixty or seventy-five years ago for an individual, or a firm, to load up with cotton and hold for a rise, which did

not come. Losses and gains were on the real cotton.

Then came the war, which was followed by cotton mills and a market for futures. Under those new conditions cotton still continued "to be a fool." Thousands and millions of dollars were made and lost on it from 1865 to the present time. The constant demand for it, its imperishable quality, except by fire, the ease with which it can be handled and its ready cash value, all tend to make it a desirable product on the Exchange. No other agricultural product has as many elements of chance connected with it. The acreage, the stand, the lateness, the June weather, the August drought, storms, early frosts, worms and the boll weevil all combine to bring the crop to the attention of gamblers. It would be impossible to get up an agricultural product with so many elements of chance in it.

The farmers have an idea that prices, especially when they are low, are fixed by European and American exchanges, and that the mills co-operate with them. That opinion is based on the fact that purchasers, the world over, are "bears" on the market and they constantly strive to lower the price. The producers and sellers are "bulls."

About the fall of 1890, when cotton was a little over 10 cents, the farmers met here, when the Alliance was in power, and refused to sell 200 to 300 bales at the price offered. They sold after that at 8 to 9, and cotton did not touch 10 cents again for ten years, and when the price was reached the farmers had none. Such an experience as that made the old farmer say that "cotton was a fool."

The farmers have their drawbacks in making cotton. From 1891 to 1901 the price generally received was $4.75 to $8.25. A few that could hold may have got a little more.

But the mill men also have their troubles. When the Clifton Mills were first built and set to going it was not a good time for spinners. About their third annual meeting a prominent stockholder said on his return from the meeting that his dividend consisted of a good dinner. He got that every year. But about 1888 the tide turned and from 1892 to 1902 it looked as if any man could manage a cotton mill and pay 8 to 10 per cent. dividends, and raise the value of the capital 20 to 100 per cent. or more.

But people are now beginning to learn that cotton mills should be managed on a most economical basis, and that they have hard times occasionally, as well as the individual farmer. They are now entering on such a crisis.

The mills managed on an extravagant plan, without the constant, personal supervision of a wise head, will have to suffer. One of the New England mills, running for many years, laid up a comfortable surplus for repairs and paying dividends. When an unprofitable year came the 12 per cent. was paid just as in good years.

The great success that many mills in the South have had for ten years may not have been best for them. The present condition, with the gloomy outlook, may not be the greatest evil. Mills, as well as individuals, are put in best condition and made capable of greatest achievements only through trials and apparent failure now and then. The gold that passes through the funnel is always refined, while that which lies in the vein is mixed with baser material.

The farmer who gives up because a poor crop year comes, or prices below the cost of production result from some cause, will never amount to much. Such a farmer will soon learn that he cannot pay a $200 manager $500, and buy $250 mules when those costing $150 will do his work equally well. He will also learn that his personal attention should be given to everything, from oiling his harness to running a farm engine.

The cotton mill men need the same lesson. One year, two years, or five years of remarkable prosperity should not puff them up and raise them above the common level to which they belong.

One may hear on the streets and in business houses every month in the year such expressions as these: "You can't satisfy the farmers. They will grumble. It's always too hot, or too cold, too wet or too dry. Nothing ever suits them."

We hope the mill men will not now, when the tide is turned, put themselves on the list of grumblers. Plucky men never grumble and find fault with conditions they cannot control.

Let farmers, merchants and mill men all get lessons helpful and healthful out of the conditions that now confront them.

Scouring Wool. Josue Koning, Croix, France, has recently brought out a new process for scouring wool which is said to be giving very good results. The wool is first rinsed in warm water to remove the loose dirt. It is then passed through squeeze rolls and sprinkled with olein. After passing through a second pair of squeeze rolls it is again sprinkled with olein and then treated in a solution of ammonia salts at 86° to 122° F.; this saponifies the oil and wool fat. After coming from this solution the successive operations of sprinkling with olein, squeezing, and treating with ammonia salts are repeated, and finally the wool is rinsed in clear water.

TEXTILE PROCESSES.

EDITED BY E. A. POSSELT.

WOOL SCOURING.

(Continued from November.)

For fine quality wools a well-made soap, quite free from caustic alkali, with or without the addition of ammonia, may be considered the most suitable scouring agent. When a somewhat more severe treatment is desirable, soap and carbonate of soda, or even the latter alone may be employed; but when dealing with yarn or cloth to which oil has been added to facilitate spinning, the character of the oil used must be taken into account in selecting the scouring agent.

A fundamental rule in scouring should always be to use as little alkali and conduct the process at as low a temperature as is consistent with a thorough cleansing of the wool, since under the most favorable conditions the lustre of the wool is apt to suffer considerable diminution. On the other hand, it is very essential to remove from the wool not only all dirt, but any greasy or oily matter which might otherwise cause trouble in the dyeing process. It is, however, unfortunately the case at present in many woolen mills that the scouring process receives very little supervision, with the result that it is conducted in a very unsystematic and irregular manner, and with lamentable results.

DIFFERENCE IN CHARACTER OF WOOL.

It has been already mentioned that the finer qualities of wool usually contain the largest amount of yolk. Closely examining an unwashed fleece from a fine grade of our domestic sheep will show it to be so full of grease that by handling it the hands become sticky and greasy, and that by twisting a lock between the fingers some grease can be squeezed out. We also find the wool divided into little bunches or locks, each being composed of a small bundle of fibres held together by a very sticky, fatty substance which contains more or less dirt adhering to it. Examining in turn another fleece from a poorer breed, raised, for example, in a region where vegetation is scant, but where the soil contains much lime, iron and magnesia salts, said wool may scarcely feel greasy, its impurities possibly consisting largely of the salts previously referred to, and which are so detrimental to a soap solution that the attempt to scour such a wool with soap would prove a failure, so that if a wool scourer who had always been used to the first kind of wool was to receive a lot of the second hand quality mentioned, and should not change his methods of scouring, he would find that what was good for one was not good for all, and that judgment must be exercised for each quality. Again in the case of very greasy wools there will be found a great difference in the relative proportions of the soluble fatty substances and the insoluble or "wool fat," so that the different classes of wool, each of which contains the same total amount of fatty matter, may require a considerable difference in treatment, owing to the different proportions of soluble and insoluble fatty matter.

For example, let us take a wool containing a large amount of soluble fat and a relatively small amount of "wool fat" and mechanical impurities, say an Ohio XX fleece, let us see how it can be scoured.

The fleece thus examined was very greasy and fairly dirty, but not excessively so.

A test resulted in proving that in the wool there was present 8.5 per cent. of moisture, 36.7 per cent. of impurities removable by means of clear, lukewarm water and 9.3 per cent. of impurities only possible to be removed by means of scouring with pure alkali and soap; or, in other words, we found that every 100 pounds of the raw, greasy wool resulted in 45.5 pounds dry wool fibre. A chemical test of the matter removed by water alone in turn showed that it contained some 74 per cent. of organic matter and 26 per cent. of inorganic matter, the latter com-

posed of 40 per cent. of sand and other impurities insoluble in water, while there was 44 per cent. of potassium carbonate in the soluble portion, besides a small amount of other salts.

With such wool the scouring process is not a very difficult one, and the chief consideration is to scour it as cheaply as possible and turn out the best work. By the use of soap alone, if the water is soft, most excellent results can be obtained, but in case hard water must be used there must first be added a small amount of pure alkali in order to soften it. On account of the trouble with hardness and also on a score of cheapness, many use pure alkali for scouring, with or without the addition of soap. As has been previously stated, pure alkali has a much severer effect on the fibre than the soap, and it is a well-known fact that fine wools, when scoured with pure alkali, lose more than when scoured with soap alone, so that the saving in chemicals may be overbalanced by the greater loss in weight of the wool scoured. In some cases the wool is simply washed in a solution of common salt and the soapy matter from the wool itself, removes all or nearly all the fat, the wool furnishing its own scouring material. If all is not removed, a little soap in the second bath will finish what little is left, and when the wool is left white, soft and clean.

The strength of the solutions used depends on several things, and the same is true of the temperature to be employed. The longer the wool remains in the bath, the weaker the solutions that can be used, and for a machine that required but four minutes for a passage through the bowl, a stronger solution would have to be used than if eight minutes were required. Also for very dirty wool stronger solutions have to be used than for fairly clean wool.

The temperature for the scouring liquor depends on the quality of the wool under operation and also on the scouring agents used. Many do not take this latter into account, but in fact, with soft water and a neutral soap, the fibre is less injured at 120 deg. F. than is the case when pure alkali and a lower temperature are employed. But a pretty safe rule is to not exceed 110 deg. F. for fine wools, nor 125 deg. F. for coarse wools.

The tendency of the times is to dispense with soap as much as possible, with the claim that it is too expensive, using in connection with good wool either pure alkali only or the same in connection with a small amount of soap for scouring. Such mills will readily learn from manufacturers who use soap alone or with just enough pure alkali to soften the water, that the results are enough better to much more than counterbalance any increase in the expense of scouring, since if using pure alkali alone, and especially in the case of using soda ash, there is a loss of wool fibre, and taking into consideration the price of wool and that of the chemicals used, it is easily seen that a small loss in wool fibre will overbalance any saving in chemicals.

Greasy wools, i. e., such in which there is a large amount of "wool fat" and a small amount of soluble fatty matter, if washed in water alone, there will be but a very small amount of matter removed. The wool fat retains even the mechanical impurities, and prevents their removal. Pure alkali, salt nor even soap itself will hardly remove all the fat, unless very large quantities are used, and which of course makes it very expensive.

In case such wool is encountered it is necessary to use some oil that is easily saponified, and especially an oil like "red oil." By the use of this oil and pure alkali even the greasiest wool can be cleaned.

Wools deficient in fatty matter of any kind, but which contain a large amount of salts of iron, calcium and magnesium, like "lime pulled" wool require again a different treatment. If the attempt was made to scour such wool direct with soap, not only would there be an enormous amount of soap destroyed, but what would be even worse, the insoluble soaps of lime and magnesia, when once fixed on the fibre, would be very hard to remove by any subsequent process. But by the use of pure alkali the lime and magnesia salts are changed to insoluble carbonates, which are precipitated in the form of a white powder, and are quite readily removed. In some cases there is not enough soluble fat to assist the carbonate in removing all the wool fat, and in such a case a little soap

should be added to the second bath in connection with the carbonate. In this way the small amount of wool fat remaining is removed without danger of the formation of insoluble soaps, as the lime and magnesia salts have been removed, or rendered inert by the first bath. However, the trouble thus mentioned can be overcome by soaking such wool in water previous to scouring and when the larger portion of these troublesome salts are removed, and the wool then can be scoured as usual with soap.

There are always more or less patents brought out, having for their object to scour wool by means of volatile liquids, which process theoretically is certainly much simpler and more economical than the ordinary process, and will probably come into general use in the future. At present, however, the mechanical difficulties of applying the large volumes of volatile and usually explosive liquids necessary have not been adequately surmounted.

In this process the wool fat, free oil, etc., is dissolved by a treatment of benzine, light petroleum oil, or other suitable solvent, the potash salts being subsequently removed by hot water. The volatile solvent is then recovered by distillation and used over again.

If this process could be conducted in an absolutely theoretical manner, its cost would probably be nil, the only expense being labor and a little steam, which would be more than counterbalanced by the value of the residuals obtained. The residue from the redistillation of the solvent is the proper raw material for the manufacture of lanolin, and the valuable potash salts could be readily obtained from the aqueous solution of the wool perspiration.

In this country the scouring liquor after having served its purpose is allowed to run to waste, but not so in England where they are not allowed to run their scouring liquors into the rivers, and where for years such liquors have been saved and utilized.

It is claimed that they only use potash soaps for scouring, so that, besides the wool fat itself, there are also the fatty acids of the soap, which are valuable. So the suds are collected in large vessels and acid added and the grease rises to the top. This is collected and drained on large filters and sold to oil mills. Here it is submitted to hydraulic pressure with heat and all the greasy matter possible is pressed out. The solid matter left contains large amounts of nitrogen matter, and is sold for manure. The greasy matter pressed out consists of wool fat, together with the fatty acids from the soap used, and has received the name of Yorkshire grease. It is of a brown to black color, and can be used for cheap candles, soap, etc.; or if submitted to distillation, fatty acids are obtained, which can be used for a better grade of soap.

This process of distillation is, however, not generally carried out, and the use of the "Yorkshire grease" is then limited. As mentioned before, it is possible to make a very inferior soap of it, for on treatment with soda or potash it is partially saponified, but the soap so produced is not readily soluble in water owing to the presence of unsaponifiable matters, of which cholesterian is the chief. "Yorkshire grease" is also used for lubricating purposes, and in cases where the wool suds have originally been kept free from those of later processes, the product is purified and used for making up into ointments.

One process in operation in some works on the European Continent is to precipitate the fatty matter in the scouring liquor by milk of lime. The lime soap obtained, which contains 70 per cent. of its weight of fatty acids is dried; and after mixing with five times its weight of coal, is used for the manufacture of illuminating gas. It is stated that it yields five or six times the illuminating power of an equal weight of coal, and, used in this manner, yields gas of about one-third the value of the soap employed.

In cases where a large amount of soap is used for scouring it might pay here, in this country, to attempt to utilize the scour liquids. As in most cases, however, but little soap is used and a large amount of carbonate of soda, it is rather doubtful if it would pay us to attempt to utilize the scour liquids from raw wool.

All things being taken into consideration, no attempt to utilize wool grease has been entirely satisfactory, and for the present, at least, most scouring places will be satisfied to remove the grease as cheaply as possible,

and allow it and the scouring reagent to run to waste.

[Since these articles were written, our attention has been called to several new preparations for use in wool scouring, particularly Wyandotte washing soda, manufactured by the J. B. Ford Co., Wyandotte, Mich. We have been much interested in the report of Prof. Mathews, analytical and consulting chemist at the Philadelphia Textile School, who has made some exhaustive comparative tests on the use of Wyandotte washing soda as a scouring agent for wool and yarn, also for washing cotton fabrics in bleaching, its action on water, correction of hardness and various comparisons. Prof. Mathew's report not only covers the practical and chemical side of the case, but also covers the question of comparative cost. We regret that we have not space to print his report, but understand that it may be had upon application to the J. B. Ford Company, and manufacturers who are interested in investigating the subject will certainly be interested in securing a copy.—Ed.]

THE CONSTRUCTION OF BEDFORD CORD WEAVE.

(Continued from December.)

FANCY EFFECTS.

1st. Produced by means of two or more colors used in the warp.

The first procedure would be to arrange a two or more colored warp, thus producing cords of a different color, giving white always more or less the preference for the body. This affair will be best explained by means of a few practical examples:

Take weave Fig. 13, and

Dress:	86 ends white	= 86 ends
	1 end pink	= 1 end
	1 end white	= 1 end
	2 ends pink, 1 end white	× 4 = 12 ends
	2 ends white	= 2 ends
	Repeat in pattern:	102 ends

This dressing in connection with weave quoted will produce in the fabric five cords in white to alternate with one of pink. Other colors like blue, brown, green, etc., can, with good results, be substituted in place of the pink; again smaller colored stripes can be used. For example:

Take weave Fig. 11, and

Dress:	43 ends white	= 43 ends
	1 end color	= 1 end
	1 end white	= 1 end
	2 ends color, 1 end white	× 3 = 9 ends
	2 ends white	= 2 ends
	Repeat of pattern:	56 ends

This dressing, in connection with the weave quoted, will produce in the fabric three cords in white to alternate with one in color. As in the preceding example most any color may be used in the dressing of the warp for the fancy threads. Again, two different colors besides white ground can be used. For example:

Take weave Fig. 11, and

Dress:	43 ends white	= 43 ends
	1 end color No. 1	= 1 end
	1 end white	= 1 end
	2 ends color No. 1, 1 end white	× 3 = 9 ends
	45 ends white	= 45 ends
	1 end color No. 2	= 1 end
	1 end white	= 1 end
	2 ends color No. 2, 1 end white	× 3 = 9 ends
	2 ends white	= 2 ends
	Repeat of pattern:	112 ends

2d. Combining cords of different size in one repeat.

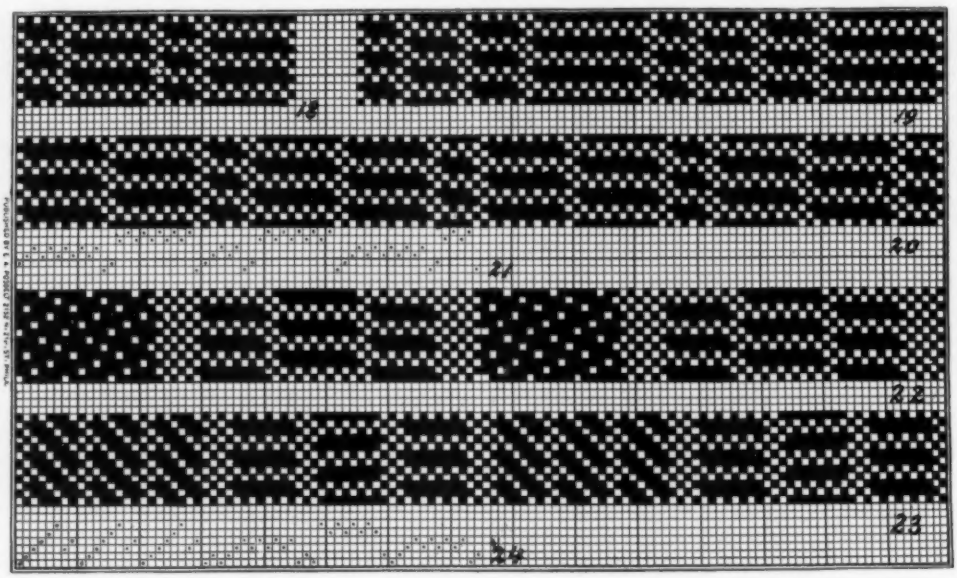
The next plan to produce fancy effects in Bedford cords is to carry the size of the cords, a feature readily explained by means of weaves Figs. 18, 19 and 20.

Weave Fig. 18 shows the combination of a cord of 6 ends to alternate with a cord of 12 ends, hence repeat of weave 18 × 4.

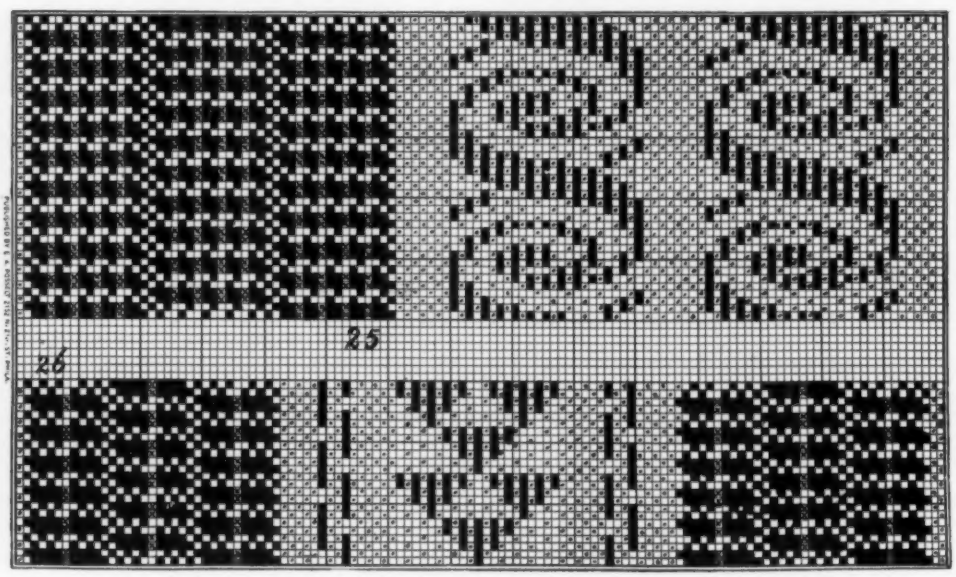
Weave Fig. 19 shows the combination of the following four cords: 6-8-8-16, the weave repeating on 38 warp threads × 4 picks.

Weave Fig. 20 shows the combination of three cords: 12-12-6, the weave repeating on 60 × 4. Diagram Fig. 21 shows the draft required to weave this weave with six (6) harness; this number (in connection with the correspondingly proper draft) being the same number of harnesses required in connection with weaves Figs. 18 and 19.

These three weaves thus given will clearly show that any number of combinations—new styles—in this way can be produced. In



either example (weaves Figs. 18, 19 and 20) we omitted to show a stuffer warp, for the reason that the face weave shows up the effects more prominently, the stuffer warp to be added to the respective cords as the case may require. Again the different sizes of cords can be shown up in different colors (always keep white cords in quantity prominently predominating over colors) in this manner being able to produce any number of new styles for this class of fabrics.



3d. Combining different weaves with Bedford cord weaves.

For explaining this subject the accompanying illustrations, Figs. 22 and 23, are given, and of which weave Fig. 22 shows the combination of

18 warp threads, 6 leaf satin (warp effect)
5 warp threads, plain
10 ends Bedford cord
12 ends Bedford cord
10 ends Bedford cord
5 warp threads, plain

60 ends, repeat of pattern × 12 picks.

Number of harness required for the production of this weave on the loom = 12.

Weave Fig. 23 shows the combination of

2 ends plain
6 ends $\frac{3}{1}$ 4 harness twill } × 3 = 24 ends
3 ends plain = 3 ends
10 ends Bedford cord weave
1 end plain } × 3 = 33 ends

Repeat of pattern: 60 ends × 4 picks.

This weave by means of fancy drawing in draft Fig. 24 can be produced with 6 harness.

In connection with both weaves (Figs. 22 and 23) we omitted any reference to stuffer warps in order to bring the fancy effect of the weave prominently to the notice of the reader; he can readily add this extra warp to the cords in any quantity desired. In the same manner as thus using the six leaf satin and four harness twill in connection with Bedford cords in the production of new styles any other system of weaves (pointed twills, honey-comb weaves, etc.) can be used; again different colors for the various effects as used in these combination weaves can be employed.

4th. Combining Bedford cords with double cloth effects.

As will be readily understood these cloth effects refer to such as produced by means of two systems of warp and one system of filling and known as "Madras." In order to explain the affair the accompanying diagrams of weaves Figs. 25 and 26 are given, representing two novelties in this line of dress goods.

Weave Fig. 25 shows three cords of Bedford weave to alternate with a double repeat of a scroll design produced by means of an extra warp (fancy color) upon a plain interlacing ground structure (to be white). [×] type in the Bedford cords indicate the stuffer warp, [.] type indicates the ground or foundation weave (plain weave) for the double cloth structure. ■ type for the first 49 threads of the weave shows the face weave for the Bedford cords, in the remaining portion of the weave indicating the design as produced by means of the extra warp. Repeat of weave 119 warp threads × 20 picks, to be woven by means of its fancy draw with 21 harness. For extra warp select any bright color, in mercerized cotton or possible waste silk, the remainder of the warp to be white. At the same time adding 2 or 4 cords to the weave (a feature which can be readily done on the sample loom by drawing a certain section of the work proportionally) will readily help to produce varieties in styles without much inconvenience to the mill.

Weave Fig. 26 shows three somewhat smaller Bedford cords to alternate with a neat two systems warp one system filling effect. The character of the crochet type in this weave corresponds to that in the previously given example, hence no explanation in detail required. Repeat of weave 84 × 12. Number of harness required 16.

Before explaining the application of Bedford cord weaves with reference to jacquard work we will next give a few

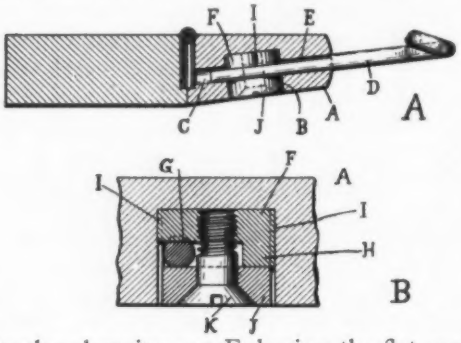
(To be continued.)

AN IMPROVED GUIDE EYE FOR "WHITIN" SPINNING FRAMES.

The object of the improvement is to provide means for adjustably securing the guide eyes to the finger boards of the frame. The improvement consists essentially in a specially shaped guide eye and a clamping device on the finger boards for receiving and clamping the stem of the guide eye, so that said guide eye may be easily adjusted to bring the eye in the proper working position, i. e., directly over the centre of the spindle. The arrangement of the parts of the improvement is best shown by means of the two accompanying illustrations, of which Fig. A is a sectional view through the finger board, with the guide eye and clamping mechanism

shown in full lines; and Fig. B is an enlarged cross sectional view through the finger board, guide eye stem and clamping mechanism. The letters of reference indicate the parts as follows:

A represents the hinged finger board of a spinning-frame, having the circular recess B in its under side, and a small hole C located on the side of the recess B, to receive the stem of the guide eye D, which has the stem made with a flattened portion E on its upper surface. The clamping mechanism, which is placed in the circular recess, consists of a



circular clamping-nut F, having the flat surface G, the projecting boss H, and the two fins I, which are pressed into the sides of the recess B and hold the clamping-nut F in position.

A circular clamping-head J secures the flattened portion E of the guide eye D between the clamping-nut F and the clamping-head J, by having said clamping-head J centrally countersunk to receive a screw K, which is threaded into the clamping-nut F, and thus the left hand side of the clamping-nut is pressed against the guide eye D with its right hand side acting as a fulcrum to adjust the guide eye D, the screw K is simply loosened, the eye placed over the centre of the spindle and the screw tightened.

AN IMPROVED PARALLEL MOTION FOR PICKER STICKS ON DRAPER LOOMS.

An ordinary type of paralleled motion consists essentially of a rigid flat stand at the bottom of the loom, having a shoe which is connected to the lower end of the picker stick, rock upon said stand. The picker stick is connected at its extreme lower end to a strap which has its other end attached to a spring, this connection tending to hold the stick down and toward the end of the box. If the connecting strap should break, the

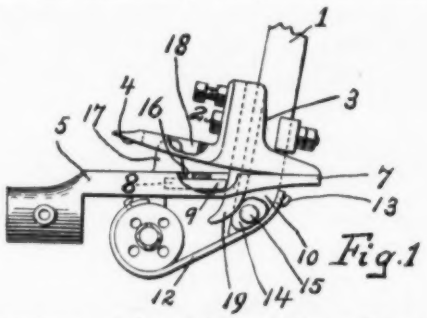


Fig. 1

tendency of the stick would be to fly up under the impulse of the lug strap and come in contact with some of the parts of the automatic filling arrangement and cause a smash to said parts. The object of the improvement is to provide means for preventing the picker stick from rising too high in case the strap should break. The improvement also provides means for easily replacing the non-metallic bearing for the picker stick when said bearing becomes worn. The details of the improvement are best shown by the accompanying illustrations, of which Fig. 1 is a front elevation partly in section, of the parallel motion, showing the guard and down-hold for the picker stick. Fig. 2 is a top or plan view of the shoe supporting stand of the parallel motion. The letters of reference indicate the parts as follows:—

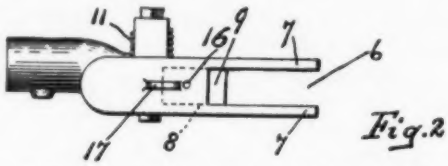


Fig. 2

1 represents the picker stick which is attached near its lower end by a bolt 2 to shoe 3, having a curved sole 4, the stick extending down below the bottom of the shoe. The latter rests upon and rocks on the flat top of a stand 5 which is rigidly secured to the lay rocker shaft on the outside of the loom. This stand is forked at its outer end, the inner end of the open slot, 6, formed between the sides, 7, being recessed to form a pocket 8 in order to receive a plug 9. This plug is

usually made of wood, the outer end of which acts as a bearing for the picker stick against the pull of the lug strap, the bottom 10 of the picker stick extending below the shoe 3 and passing down through the slot 6. A spring 11 is mounted on the stand 5, the free end of the spring being attached by a strap 12 to a hook 13 on the depending part 10 of the picker stick. The outer end of the sole of the shoe 3 rests on the separated ends 7 of the stand 5. On the lower end 10 of the picker stick is mounted a guard or downhold 14 below the ends 7, said guard being made of two sufficiently thick blocks of leather placed on opposite sides of the part 10 and held securely in position by a headed bolt 15 and a nut on the opposite side (not shown). Should the strap 12 break or the connection between the picker stick and spring 11 be ruptured in any way, the picker stick will be prevented from rising and doing any damage either to the shuttle, hopper or filling carriers by having the guard 14 come in contact with the ends 7 of the stand 5.

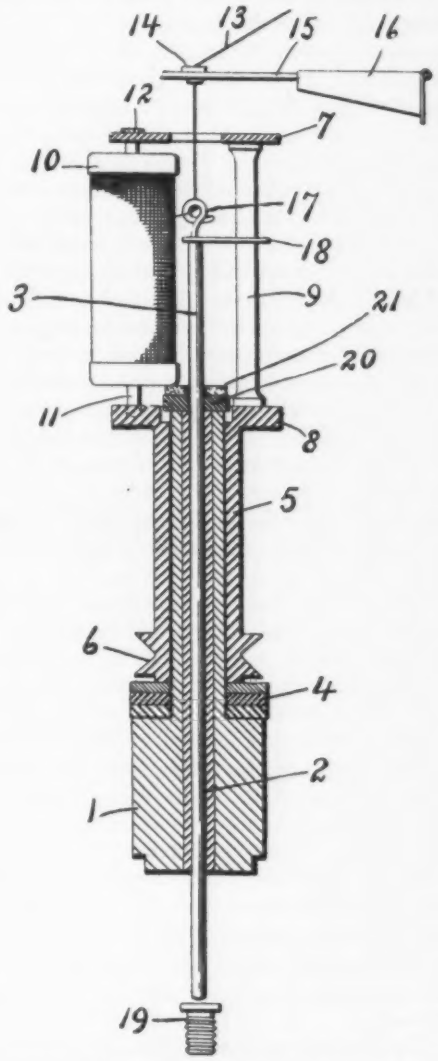
To replace a plug 9, it is only necessary to remove the strap 12 from the hook 13 and then to pull the connected stick and shoe bodily outward along the slot 6, leaving a free space for the removal of the plug and consequent insertion of a new one.

In order to facilitate the removal of the plug, the stand is provided with a small hole 16, opening into the recess 8, by means of which an awl or other pointed tool may be inserted to assist in loosening the plug. The stand has an upturned guide lug 17 which enters an opening 18 in the shoe, and the latter is shown provided with a downturned extension 19, which passes through the slot 6 and bears against the plug 9.

A NOVEL TWISTING AND WINDING MECHANISM FOR TWISTERS.

The object of the new device is to provide means for twisting and winding threads on a twister without causing the thread to balloon as it passes from the thread guide eye on the frame to the bobbin on which it is wound, a feature which is a disadvantage met with on ordinary twisters.

The object is accomplished by having the bobbin, on which the thread is wound, placed out of centre from the ordinary spindle on the twister and made to revolve bodily around said centre, with the thread which is to be wound on the bobbin, drawn down in line with the axis of the spindle, so that said



thread will have no tendency to balloon, and hence a strain on the thread will be avoided.

The device consists essentially of a specially shaped spindle which is provided with plates on the upper end to hold a bobbin out of the centre of the spindle, and also a friction surface, situated within the orbit of the

bobbin, which is used to produce the necessary rotation of the bobbin about its own centre, in order to wind the thread on to said bobbin. A vertically traversing guide eye is also provided, in order to properly guide the thread on to the bobbin.

The details of the device are best shown by means of the accompanying illustration which is a view, partly in section, showing the arrangement of the parts. Numerals of reference indicate the different parts thus: 1 represents a stud which is secured in the bolster rail of the twister by means of a screw, said stud 1 being provided with a brass bushing 2 for receiving the spinning eye rod 3.

Journaled on the stud 1 and supported by washers 4 is a spindle 5 having the ordinary whirl 6. At its upper end, the spindle 5 is provided with top and bottom bearing plates 7 and 8, which are connected by posts 9. The top and bottom bearing plates 7 and 8 are designed to receive the bobbin 10 between them. The rod 11, on which the bobbin 10 is mounted, is arranged to fit into a socket in the bottom plate 8 and may be snapped into place into a socket in the top plate 7, behind a catch 12. The sockets in the bearing plates 7 and 8 may be arranged directly over each other, so that the rod 11 will stand exactly perpendicular, or they may be arranged so that the rod 11 will be slightly inclined forwardly and inwardly to counteract the tendency of the bobbin to ride upon the rod 11, when the spindle is driven at high speeds.

The thread 13, as coming from the rolls, is passed through the usual thread guide 14, carried by a thread guide support 15, extending from a thread board 16.

At the upper end of the rod 3 is a spinning eye 17, and in order that the rod 3 may be driven at the same speed as the spindle 5, the rod 3 is provided with a projecting arm 18, arranged to engage one of the upright posts 9.

The bobbin 10 revolves bodily around the twisting point, the spinning eye 17 turning in unison with the spindle 5 and having an up and down motion to lay the thread upon the bobbin. The spinning eye spindle 3 is arranged to have its lower end rest upon the bearing piece 19, secured in the lifter rail, the downward motion of the spinning eye spindle 3 being caused by its own weight.

In order to revolve the bobbin about its own axis to take up the thread delivered to it, a metallic friction disk 20, which rests loosely on top of the stud 1 is provided, having a facing 21 of felt. During the normal operation of the machine, the weight of the bobbin, bearing upon the friction disk, will cause said bobbin to rotate upon its own axis at the same time that it revolves bodily about the twisting point. When, however, the thread is not delivered from the rolls as fast as required by the normal rotation of the bobbin, the friction disk 20, instead of remaining stationary and causing the bobbin to revolve, it will rotate upon its bearing upon the end of the stud 1 and hence cease to rotate the bobbin until sufficient thread has been delivered to relieve the strain which was put upon it.

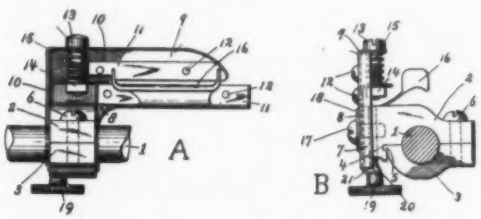
AN IMPROVED THREAD GUIDE FOR SPOOLING MACHINES.

The object of the improvement is to provide means, on a thread guide for spooling machines, for setting the guide to suit different counts of yarns, as well as for setting the guide to different elevations for different lengths of spools, at the same time providing means for introducing the thread parallel with the face of the thread guide jaws. The improvement consists essentially of a hub which is clamped upon the lifter rail, and jaw carrying pieces stamped from sheet metal, which have a sliding connection with the hub, in turn permitting said jaw carrying pieces to be moved up or down so as to vary the elevation of the guiding jaws. This sliding connection of the jaw carrying pieces also permits a variation in the width of the slot between the guide jaws to be made to suit different counts of yarn. The accompanying illustrations will give a clear idea of the various parts of the new device.

Fig. A is a front view of the new thread guide and Fig. B an end view of it showing the positions of the parts in their proper relations to each other. Numerals of reference indicate thus:

1 represents the traverse or lifter rail, which is moved up and down in the operation of a spooling machine and which carries the required number of thread guides. The thread guide consists of two castings 2 and 3, the top casting 2, being provided with a transverse groove 4 for receiving a tongue or projection 5 from the bottom piece 3, said parts being drawn together and fastened onto the lifter rail 1 by screw 6.

Projecting rearwardly from the top clamp piece 2, is a lug 7, forming a vertical way upon which the L shaped jaw carrying pieces 8 and 9 are either individually or simultaneously adjusted. The jaw carrying pieces 8 and 9 are stamped from sheet metal and are



provided with flanges 10 which serve to stiffen said jaw carrying pieces and also permit them to be fitted accurately together.

Mounted in each of the jaw carrying pieces 8 and 9 is a steel jaw piece 11, adjustably secured in place by screws 12.

To regulate the space between the steel jaws 11 in order to set the guide to different numbers of thread, a screw 13 is provided, which is threaded into a nut 14 and has a coiled spring 15 mounted on it, normally tending to separate the thread guide jaws 11, so that by tightening the screw 13, the slot between the jaws can be narrowed, while by loosening said screw, the slot can be widened.

In order to prevent the thread from binding while passing between the thread guide jaws 11, it should pass between the jaws on a line parallel with their faces, and to accomplish this, the lower L shaped jaw carrying support 8 is provided with an extension 16, having a rounding upper surface for guiding the thread in the desired direction and turned up ends acting as stops for preventing the thread from passing out from between the thread guide jaws 11.

To secure either an individual or simultaneous adjustment of the jaw carrying pieces in the thread guide, the clamp screw 17 is turned to loosen the washer 18, which holds the jaw carrying pieces 8 and 9 in place, and when this has been done the jaw carrying pieces can be adjusted with respect to each other by turning the adjusting screw 13, or the jaws may be simultaneously raised or lowered to the desired position to compensate for variations in the lengths of spools. This last adjustment can, if desired, be done by hand, but an adjusting screw 19 is provided for the purpose, having a circumferential groove 20, which is engaged by a finger 21 extending therein from the jaw carrying piece 8.

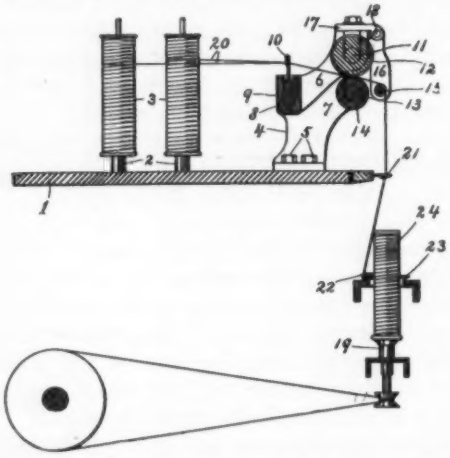
When the thread guide is provided with an adjusting screw 19, the jaw carrying pieces 8 and 9 need not be clamped in place by the screw 17, but said screw and its washer 18 may be employed simply to hold the jaw carrying pieces in place, so that the adjusting screw 19 may be manipulated at any time without first loosening the screw 17.

AN IMPROVED THREAD RETAINING BAR FOR TWISTING MACHINES.

The object of the improvement is to provide means for preventing the yarns which are to be twisted together from catching on to a different yarn when the former break, and also from wrapping around the bottom roll of the machine, which broken ends are very liable to do in the ordinary twister.

The improvement consists principally in having the yarns, to be twisted together, pass once around the top roll of the machine, which necessitates a drive of the rolls in the opposite direction from the ordinary twister, in order to properly deliver the yarns to the winding mechanism of the bobbin; and from the rolls passing over a retaining bar situated in front of the rolls, to the thread guide and thence to the bobbin through the ring traveler on the spinning ring. The details of the arrangement are best shown by means of the accompanying illustration, which is a cross section of the machine through the parts relating to the improvement. The figures of reference indicate the parts as follows: 1 represents the top of the twister,

holding the creels 2 which carry the spools 3 of yarn, loosely on their upright projections. A stand 4 is secured by bolts 5 to the top 1 of the machine and has two angularly projecting arms 6 and 7 extending upwardly toward the front of the machine. The stand 4 is also provided with a V shaped socket 8 in which the traverse bar 9, for the yarn, is loosely mounted, said bar 9 carrying the guides 10. The arm 6 is provided with a journal to receive the shaft 11 of the top roll 12, while the lower arm 7 supports the shaft 13 of the bottom roll 14. The thread retaining bar 15 is held by the downwardly hanging arms 16, situated along the front of the machine, said arms 16 being pivoted at their top ends to the plate 17 by a pin 18. The arm 16 is provided with a flat surface to bear against the stand and keep the retaining bar 15 directly over the centre of the spindle 19.

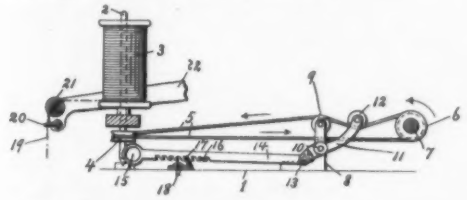


From the spools 3 are unwound the threads 20 which are passed through the guide eye 10 to the bottom of the top roll 12 and wrapped once around said top roll 12, then passing forward between the top and bottom rolls 12 and 14 and over the retaining bar 15. The thread then passes down through the thread guide 21 to the traveler 22 on the spinning ring 23, where it is wound on to the bobbin 24 in the usual manner. On examining the course of the yarn to the retaining bar 15, it will be seen that the rolls 12 and 14 have to revolve in an outward direction in order to deliver the yarn, which is in the opposite direction from the ordinary twister. Ordinarily when a yarn or both yarns break in passing from the rolls to the spool, the loose ends of said yarns are liable to fly out and catch onto the yarn passing from the adjacent rolls to its respective bobbin, thus making these adjacent yarns three or four ply, or else winding around the bottom roll and causing a loss in time to clean said yarn off, and also the loss of stock. By having the yarn pass entirely around the top roll, when said yarn breaks it is caught up and wound around the top roll from which it can then be easily taken off. If the break in the yarn occurs between the retaining bar 15 and the ring traveler 22, the loose end of the broken yarn is prevented from coming into contact with the bottom roll 14 by means of the retaining bar 15 which is situated at a sufficient distance in front of the bottom roll to protect the loose end from such wrapping around the roll. Whenever it is desired to have access to the bottom roll, the arms 16 may be raised on their pivots 18, thus elevating the retaining bar 15 above the top rolls.

TENSION DEVICE FOR SPINDLE BAND FOR THREAD DRESSING MACHINES.

The object of the device is to provide means for increasing the tension on the bands for driving the spool spindles on a thread dressing machine when the bobbins are being filled. Ordinarily when the spool is filling up with yarn and consequently becoming heavier and requiring more power to drive, the driving band will generally slip to a certain extent on the whirl of the spindle and thus cause an irregular feed of the thread to the spool, but by using this tension device for the bands, as the spool becomes heavier with yarn, the band may be tightened, thus gripping the whirls more firmly, causing less slipping and consequently obtaining a more uniform feed for the thread to the spool. The details of the device are best shown by means of the accompanying illustration, which is a cross section of a thread dressing machine, showing the tension mechanism in full lines. The letters of reference refer to the parts as follows:—

1 represents the upper portion of the frame of a thread dressing machine having the ordinary spool spindles 2 vertically mounted in proper bearings on said frame to hold the winding spools 3, each of said spindles having a whirl 4 rigidly secured to it. The whirl 4 is driven by a band 5 from a whirl 6 which is secured to a rotating shaft 7.



Rigidly secured to the machine frame 1 is an upright piece 8, provided with a roller 9 which has a peripheral groove to receive the under portion of the band 5.

Pivoted upon the standard 8 at a point 10 is a lever 11, one arm of which extends rearwardly of the standard 8 and is provided with a grooved roller 12, situated above the upper portion of the band 5. The other arm of lever 11 extends toward the front of the standard 8 and has its end connected by a pin 13 with a bar 14, whose opposite end terminates in a circular opening 15 near to the spool spindle 2, and is used as a handle. This bar 14 is provided with teeth 16, arranged to engage upon the wall of an angle strip 17, which is secured upon the machine frame by screws 18.

The thread 19 is guided on to the bobbin by passing it up through a guide wire 20, over a loose, grooved pulley 21 to the bobbin 3, the guide wire and pulley being carried on a lever 22 which is centered and is actuated by means of a cam (not shown) to give the proper traverse to the thread.

When an empty spool 3 is to receive the thread 19 from the thread guiding mechanism as described, the operator first lifts the bar 14 by its handle 15, from its teeth engagement with the upper wall of the angle strip 17, and pushes it in, so as to swing the lever 11 to a vertical position upon the standard 8, this movement of the said lever 11 carrying its grooved roller 12 out of contact with the upper portion of the band 5 and allowing the same to have a straight connection between its whirls 4 and 6. After the spool becomes partially filled with the thread, the bar 14 is lifted from its teeth engagement with the angle strip 17 and drawn forward a short distance to again engage with the said angle strip 17, this movement of the bar being sufficient to carry down the grooved roller 12 and kink the band 5 between the whirl 9 of the standard and the whirl 6 of the driving shaft, the tension so formed upon the band causing it to adhere more firmly upon the whirl 4 of the spindle, and thus the spool receives a more uniform circular motion with relation to the mechanism for guiding the thread upon it. Instead of using the teeth 16 on the bar 14, said bar may be screw threaded at the end and provided with a thumb nut, mounted on this portion of the bar, and fixedly secured in position on the wall of the angle strip 17 to set the roller 12 in any position and hold it in place.

JACQUARD EFFECTS FOR WOOLEN AND WORSTED DRESS GOODS, PRODUCED ON THE HARNESS LOOM:

by means of drafting warp threads alternately 1:1 from two foundation weaves. This excellent system of designing weaves for novelties in the line of textiles is readily explained by means of the four "new" weaves accompanying the present article. In the same manner an endless number of new weaves can be readily constructed—in fact there is no limit for new weaves, besides, all weaves thus constructed can be arranged to repeat on a certain number of harness, just as the latter item is convenient to the mill.

In connection with weaves furnished to explain the construction of this system of designing novelties we have kept within the limit of 16 harness, and 126 warp threads in the repeat of the pattern; however, in most cases the designer will have up to 24 or more harness at his disposal and as to the repeat of pattern warp ways, it is an easy matter to extend this affair to any number of ends—in the thousands if required; this repeat being regulated by the relation of the repeat of the foundation weaves toward each other, a feature readily understood, as we will explain

the construction of the four weaves accompanying this article.

For foundation we may select weaves from most any system—twills, broken twills, skip twills, corkscrews, granite weaves, etc., in fact affairs not considered by themselves, i.e. no proper weaves, can in this instance be used as foundations for these novelty weaves.

THE PRINCIPLE OF CONSTRUCTION

of these weaves is to select two foundation weaves, each of a different repeat, and next draft alternately one warp thread from one weave and one warp thread from the other weave, and continue drafting in this manner until both weaves are at the same time used up, and not until that moment the repeat for the new weave is obtained. Provided we would in this manner combine two weaves of an equal repeat, such combination would simply produce a new weave twice the dimensions of either one of the foundation weaves, and not the large effect weave, or design we are after. For example:

Two 8 harness weaves, combined 1 : 1 warpways = a new weave repeating on 16 × 8.

Two 12 harness weaves, combined in the same manner will equal a new weave repeating on 24 × 12, and so on, no large elaborate effects will result.

However, this affair is at once reversed if dealing with foundation weaves of a different repeat towards each other. For example:

Combine weaves 5 × 5 and 6 × 6 with each other. Then, 5 and 6 = 30 the lowest number into which 5 and 6 are evenly divisible. Having in this manner to use 30 warp threads for either weave (drafting 1:1) we thus get 30 × 2 = 60 warp threads for the repeat of the new weave. Filling ways the new weave will repeat on 30 picks—since no filling drafting is to be done; thus repeat of the new weave 60 × 3.

Combining weaves 5 × 5 and 7 × 7 = repeat of new weave 70 × 35,

Combining weaves 5 × 5 and 9 × 9 = repeat of new weave 90 × 45,

Combining weaves 6 × 6 and 8 × 8 = repeat of new weave 48 × 24,

Combining weaves 8 × 8 and 9 × 9 = repeat of new weave 144 × 72, etc., etc.

DRAWING IN DRAFT.

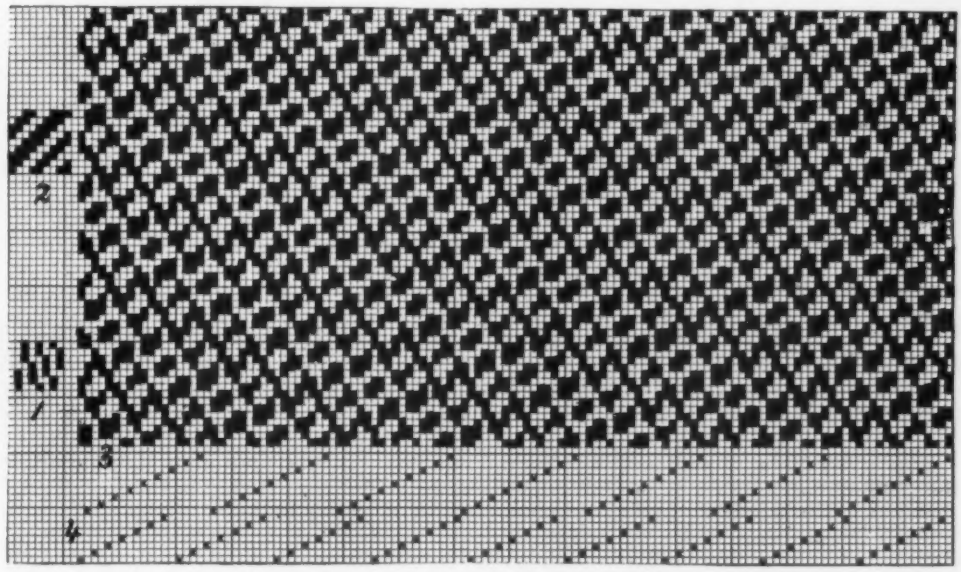
This system of designing novelty weaves calls for "double draws." For example, let us consider double draw required for the combination of a 4 × 4 and 5 × 5 weave for foundation, using a light face type for one weave (4 × 4) and a body type for the other weave (5 × 5).

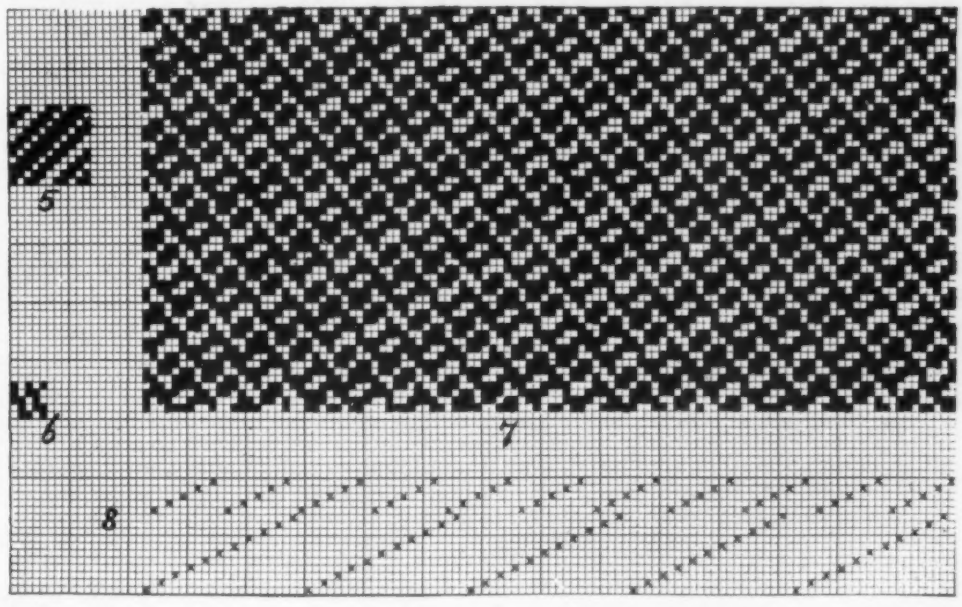
Thus: 1 5 2 6 3 7 4 8 1 9 2 5 3 6 4 7 1 8 2 9 3 5 4 6 1 7 2 8 3 9 4 5 1 6 2 7 3 8 4 9, this being the drawing in draft required.

However, when dealing with a new weave, we must—from a practical point—consider also its disadvantages as well as its advantages, and if the first is the case, see how we can remedy the trouble, or at least minimize said disadvantage to its lowest chance. In the new system of weave we find the disadvantage to consist in the chance of a difference of interlacing of the warp threads, resulting in a varying take-up for the warp. By this we mean when dealing, for example, with a 5 × 5 and 7 × 7 foundation weave it is only a natural consequence in the combination of these weaves that the warp threads of the 5 harness weave will take up more than those of the 7 harness weave, although the affair might be the reverse, since we readily will understand that there are 5 harness weaves which will interlace the warp threads looser than 7 harness weaves: however, the first mentioned affair will more or less predominate, considering any number of weaves possible to be made on 5 or 7 harnesses. The difference, although only very little and besides well balanced all over the width of the cloth, however, may exist, and consequently the greatest of care must be exercised when selecting the foundation weaves for the present system of novelty weaves so as not to make this difference in the take-up between the two foundation weaves used too great, a feature which could only be remedied by using two beams, i. e., one warp beam for carrying the warp threads for the one weave and a second warp beam for carrying the warp threads for the other weave. However, if being careful in the selection of the proper foundation weaves, the equal distribution of 1:1 in the fabric will greatly assist to balance a slight difference in the take-up

with reference to the foundation weaves used.

Again, it also depends a great deal on the nature of the yarns used and the class of cloth we deal with; for instance, light-weight fabrics like woolen dress goods, with a careful selection of foundation weaves, will make little, if any, trouble, whereas the same weave if used for worsted men's wear (heavier textures and weight) may not work as easy; again, if the warp is of an elastic nature, i. e., will give, stretch, the present disadvantage will not make so much trouble then if dealing with a short, stiff, hard warp. The twist of the filling yarn will also influence the





matter, since a soft, loosely-twisted filling will more readily assist to balance any difference in the take-up of the warp, whereas if dealing with a hard-twisted filling the warp will not have the same chance of recovering its part after bending around the filling. If employing a high-warp texture, i.e., a great many warp threads per inch, it is difficult for the warp to act upon the filling, since in this instance the warp must always bend around the filling and in which instance any great difference in the take-up between the two weaves used will make trouble if using one warp beam, and only can be successfully overcome by means of using two beams, i.e., one warp beam for carrying the warp threads for the one weave and one warp beam for carrying the warp threads for the second weave.

However, this disadvantage can be readily overcome by selecting two weaves of a nearly equal texture, no need to go to those extreme school affairs which always are bent to make trouble—which may work on a sample loom, but will never do in practical work.

A FEW PRACTICAL EXAMPLES.

Fig. 1 is the common 7 harness corkscrew. Repeat 7×7.

Fig. 2 is the common $^{3}_{2}{}^{2}_{2}$ 9 harness 45° twill. Repeat 9×9.

Warp: Considering 7 and 9 gives us 63 as the lowest number into which 7 and 9 are evenly divisible and 63×2 (once for each weave) $= 126$ warp threads for the repeat of the new combination weave Fig. 3.

Filling: 7 and $9 = 7 \times 9 = 63$ picks (no drafting done filling ways) for the repeat of the new weave.

Diagram Fig. 4 shows the double draw required for weaving weave Fig. 3 on $7 + 9 = 16$ harness.

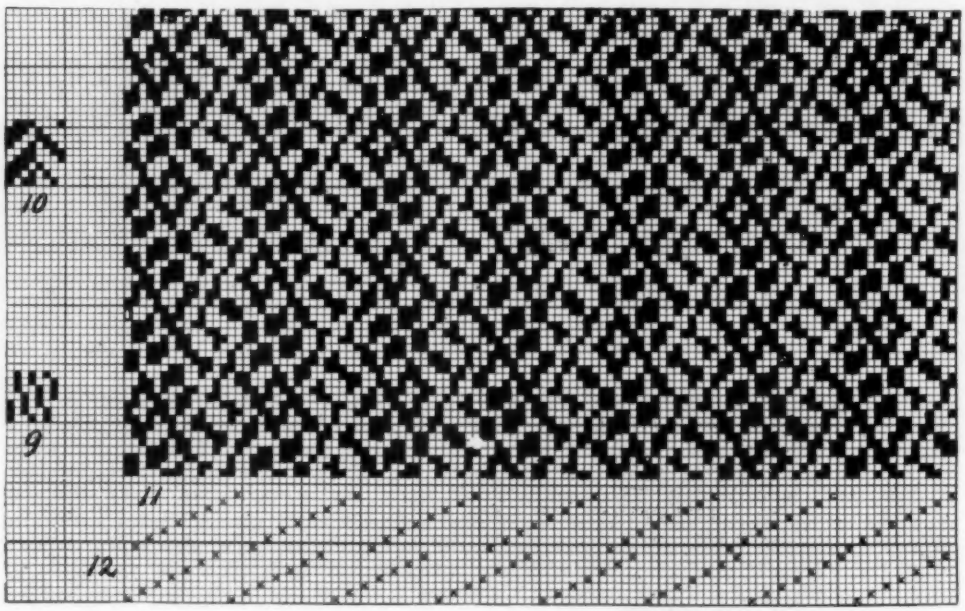


Fig. 5 is the common $^{3}_{1}{}^{2}_{2}{}^{2}_{1}$ 11 harness 45° twill. Repeat 11×11.

Fig. 6 is the common 5 harness corkscrew. Repeat 5×5.

Warp: Considering 11 and 5 gives us 55 as the lowest number into which 11 and 5 are evenly divisible and 55×2 (once for each weave) $= 110$ warp threads for the repeat of the new combination weave Fig. 7.

Filling: 11 and $5 = 11 \times 5 = 55$ picks (no drafting done filling ways) for the repeat of the new weave.

Diagram 8 shows the double draw required for weaving weave Fig. 7 on $11 + 5 = 16$ harness.

Besides using all over patterns for the con-

struction of these weaves, we also may use striped effects; producing in this manner some excellent novelties for worsted and woolen dress goods, etc. As will be readily understood by the reader to get this stripe effect we must use warp or filling effect to alternate in one of the foundation weaves, in this manner giving the new weave the characteristic stripe effect. This affair will be readily explained by means of two examples, weaves, Figs. 11 and 15 respectively. Of these two weaves, weave 11 shows a more pronounced effect and besides smaller stripes, the dark and light effect being balanced, i. e., stripes of equal size are produced in the fabric, whereas in connection with weave Fig. 15 the light stripes are smaller compared to the heavy stripes, producing in the fabric fine light stripes upon a heavier background.

Considering the construction of the first novelty weave we find the same to have for its foundation $\frac{2}{4}$ 7 harness corkscrew and the broken twill: $\frac{3}{2}\frac{3}{1}$ 9 harness twill 4/ and $\frac{1}{3}\frac{1}{3}\frac{2}{}$ 9 harness twill 4\ repeating on 8×9.

Warp: Considering 7 and 8 gives us 56 as the lowest number into which 7 and 8 are evenly divisible and 56×2 (once for each weave) $= 112$ warp threads for the repeat of the new combination weave Fig. 11.

Filling: 7 and $9 = 7 \times 9 = 63$ picks (no drafting done filling ways) for the repeat of the new weave.

Diagram 12 shows the double draw required for weaving weave Fig. 11 on $7 + 8 = 15$ harness.

Fig. 13 is a broken twill — warp and filling effect respectively thus: $\frac{3}{1}\frac{2}{2}\frac{2}{1}$ 11 harness twill 7/ and $\frac{2}{2}\frac{1}{3}\frac{1}{2}$ 11 harness twill 4\, repeat of weave 11×11.

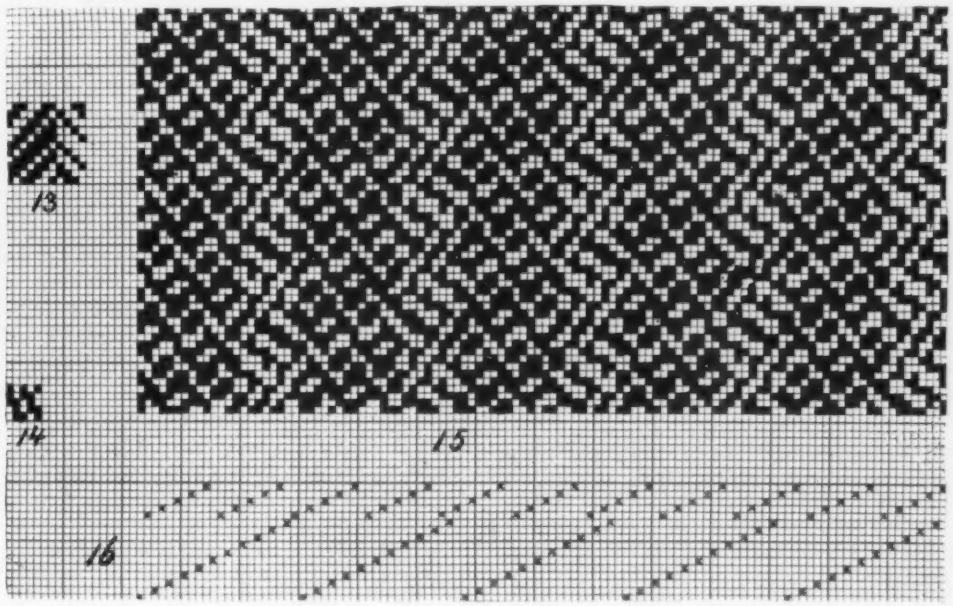


Fig 14 is the common 5 harness corkscrew. Repeat 5×5.

Warp: Considering 11 and 5 respectively gives us 55 as the lowest number into which 11 and 5 is evenly divisible and 55×2 (one for each weave) $= 110$ warp threads for the repeat of the new combination weave Fig. 15.

Filling: 11 and $5 = 11 \times 5 = 55$ picks (no drafting done filling ways) for the repeat of the new weave.

Diagram Fig. 16 shows the double draw required for weaving weave Fig. 15 on $11 + 5 = 16$ harness.

These few examples will readily explain the immense chance for designing any quantity

as well as any variety of new weaves of this kind, and this for any given number of harness. The affair can be extended into the thousands of ends for repeat of the pattern. For example let us consider Weave Figs. 13, 14 and 15 respectively, and let us simply change Weave Fig. 13 as a perfect broken twill, i. e., to be extended until its proper repeat will occur, and which (drafting 7 warp effect / to alternate with 4 filling effect \) will not be the case until 121 warp threads. Considering this broken twill as repeating on 121×11 as one of the foundation weaves in connection with, for example, the 5 harness cork-screw shown in weave Fig. 14 we will then get $121 \times 5 = 605$ as the lowest number into which the repeats of these two weaves previously quoted are evenly divisible and 605×2 (one for each weave) = 1210 warp threads for the repeat of the new combination weave. With reference to the repeat of the weave filling ways: 11 and $5 = 11 \times 5 = 63$ picks (no drafting done filling ways) for the repeat of the new weave, which therefore has for its repeat 1210×55 and can be woven on 27 harness double draw.

BRUSSELS AND WILTON CARPETS.

THEIR CONSTRUCTION AND MANUFACTURE, WITH PRACTICAL POINTS ON DESIGNING.

Considering both fabrics in a general way, from a technical point of view, the two are really a similar fabric, there being little difference in the process of their manufacture.

BRUSSELS CARPET.

Brussels and Wilton carpet manufacture had its origin in Tournai, Belgium, from where it was introduced into Wilton, England, and from there into this country.

The manufacture of Brussels carpets has during the last quarter century changed wonderfully. Where twenty-five years or so ago but one or two standard qualities were made, at present they are made in any number of grades, a feature which later on will be dealt with more in detail, the object in many cases being to trade off an inferior fabric for a better make. Another point worth mentioning is the fact that considerable improvements have been made in the looms for the manufacture of Brussels carpets. The standard width of Brussels carpets is 27 inches, i. e. three-quarters of a yard.

Brussels carpet is a warp-pile fabric in which figures are produced by raising over a wire different solid colored warp-threads at certain places according to the design.

BRUSSELS VICE VERSA TAPESTRY CARPETS.

Brussels carpets are of a far superior character, as respects color, quality of material used and the structure, than the tapestry carpets. Although at a first glance they are to the less experienced person so similar in appearance that they might readily be regarded, on a casual consideration, as fabrics of the same structure; but, when the principles on which the design is obtained in the two kinds of carpets are more closely examined, it will be at once seen that there is practically no actual resemblance between both, since in connection with Brussels, the pattern is a woven effect, whereas in the tapestry carpets, the same is merely a print affair. Examining both kinds of carpets it will be noticed that the Brussels fabric has several advantages over tapestry carpets.

In Brussels carpets, the colors used are generally "fast," as the yarn is hank-dyed and not colored in the warp as is done with the tapestry carpets.

Again, in Brussels carpets the pile is fuller and made of better materials while the body of the fabric is not as much due to strengthening (stuffer) threads as is the case in connection with tapestry carpets. In Brussels the worsted yarns used in the formation of the pile being used simultaneously also, considerably, as stuffer threads to impart body to the fabric, thus making the carpet more pliable and consequently resisting more wear than a tapestry carpet will give; a good four or five frame Brussels carpet thus outlasting in wear two or three tapestry carpets.

Another point of advantage to Brussels carpets is the fact that its pattern is more pronounced, each portion of the design being clearly and distinctly developed, as compared to tapestry carpets, where the figure is always more or less indistinct, especially at the out-

line of a figure, arising from the system on which the pattern is produced in the fabric. In this case the design is printed on to the pile warp threads, previously to weaving, and when in turn the change of one color to the other—considering each pile warp thread—cannot come up distinct in the loops, the change of the colors—from one color to the other—on every warp thread, must tend to blur at their point of contact, this feature at the same time being heightened by the difference in take up of the pile warp during weaving.

CONSTRUCTION OF BRUSSELS CARPETS.

Brussels carpets are technically classified by "frames," or in other words by the number of different colors called for in a vertical row of squares on the designing paper, as also in one row of loops, considered in the direction of the warp, in the fabric. In tapestry carpets, one double thread of worsted, printed according to the design, is used for one row of loops (warp-ways), while in Brussels carpets a similar double thread is used for each color as required by one row of squares, warp ways, in the design. One color only from the frame is raised at one time for forming the loop, the other threads of the frame then not called for, resting in the body structure of the fabric. Therefore the thickness and substance of the fabric is not so much due to cotton, hemp or jute thickening threads, as is in the body of the tapestry carpet, but the same pure worsted thread, which forms the face (loop-pile) in the fabric, will at every place not called for for forming loops by the design, form part of the body of the fabric.

As mentioned previously, each color of the pile warp in a Brussels carpet requires what is technically called a separate frame, and the manner in which the various colors are controlled—in other words, in which they are concealed from, or brought into view—is an important factor in the manufacture of this carpet. On examining a Brussels carpet, it will be observed that the individual threads forming the pile seem either to be composed of several colors, or to be substituted by yarns of other shades, according to the section of the pattern being formed. For instance, in the same line of the design, looking at the fabric lengthways, apparently in the same thread, as many as from two to six colors, such as black, green, slate, scarlet and yellow, form the pile in succession. If these effects are not due to a variegated yarn, they are the result of the employment of distinct threads, each of which is so controlled that it only appears in the pile when required to produce the design. Effects of this order are due to changing the positions of the respective pile warp threads by reversing the weaves. The several shades of a Brussels carpet are manipulated on this double weave principle of intertexture. To obtain a three-frame pattern composed, say, of black, blue and green, at least three separate weaves are necessary—one for each shade. Thus the weave used in forming the shed in the warp for the black pile is so arranged as to depress the blue and green, while that for giving the blue pile conceals the black and green pile threads, and lastly, that for producing the green pile hides the black and blue pile ends; so that, by an appropriate application of these respective weaves to the design, the colors are brought up in the figure wherever required.

The ground warp in Brussels carpets is interlaced with the filling on the common four harness basket weave arranged so as to have each two successive picks inserted in the same opening of the shed (of the ground warp) and only separated by the pile warps. One pick passes above, and its mate pick below the pile warp threads holding the latter firmly secured between; thus, if the raising of the pile warp over its wire for forming the characteristic loop should be omitted, we would produce nothing more than a fabric interlaced on the common four harness basket weave having a stout packing or thickening thread in the centre.

FRAMES.

As mentioned before, Brussels carpets are graded by "frames." There are two, three, four, five-frame and in exceptional cases six-frame Brussels carpets.

Under "frame" we classify the number of different colors found in the different rows of squares in a vertical direction on the de-

signing paper; thus a three-frame Brussels carpet has three different colors in one row of loops (warp-ways) in the fabric. Any of these three colors can at any other row of loops (warp-ways) be exchanged to a different color without changing the principle of a "three-frame" carpet.

A "four-frame" Brussels carpet will extend the number of colors for each row of loops to four colors. Thus, a "five-frame" Brussels carpet will show five different colors in one row of loops warp ways. A "six-frame" Brussels carpet will extend these number of changes to six colors.

In Brussels carpets, the different colors used are variously distributed, one color being used to a greater extent than the other, etc. This method of using every pile warp thread at will, and in a different amount than others, requires us to use instead of ordinary warp yarn beams, bobbins, or miniature beams fixed in frames, or a huge creel, stationed behind the loom. The manner in which the different colors are controlled, in other words, in which they are concealed from or brought into view upon the face of the fabric is of great importance in the manufacture of this article.

Fig. 1 illustrates the section of a 3-frame Brussels carpet. In the same, threads marked a and b represent the binder-threads. A, B, C represent the three different colored

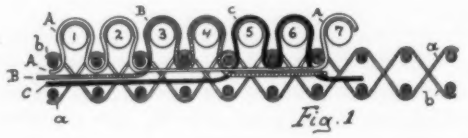


Fig. 1

pile warp threads. Numerals 1, 2, 3, 4, 5, 6, 7, illustrate the section of the wires as used in the formation of the loop. Shaded circles show the sections of the ground or body filling—jute, hemp or stout cotton being the material for it.

The binder warp is drawn in two common harness frames, which are placed in the rear or front of the Jacquard-harness. The face or pile is drawn in the Jacquard-harness, which is tied up for as many sections as there are frames in the carpet, so that in the present example of a 3-frame carpet we must use a 3-section tie-up.*

Fig. 2 shows a perspective view of such a three-frame structure, from which it will be seen that when the pile warp thread A, as shown in outlines, forms a loop, pile warp threads B and C rest in the body of the structure, as stuffer threads. In the same way when pile warp thread B, shown shaded, forms a loop, threads A and C act as stuffers. Again when pile warp thread C as shown in full black, forms a loop, the other two pile warp threads B and A respectively, act as stuffers to the fabric. Thus in a 3-frame

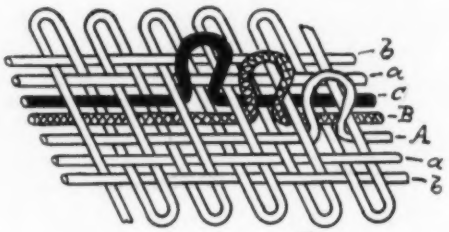


Fig. 2

Brussels carpet two pile warp threads of each frame act always as stuffer threads to the structure.

Brussels carpet varies in pitch from 8 to 10 (loops per inch), 9 to 9 1/2 loops being the most generally found, for which reason no detail of the design can be obtained in the fabric less than 1/9 of an inch.

WEAVING.

The reason for grading Brussels carpets by frames is this: The worsted pile warp which forms each frame of the carpet is, during the process of weaving, derived from a separate frame of reels or bobbins. These frames, whether two, three, four, five or more in number, are placed more or less horizontally behind the loom. Each reel supplies one pile thread of worsted to the loom, and as there are in connection, for example—with a 9 1/2 pitch (9 1/2 × 27 =) two hundred and fifty-six pile warp threads in the width of the Brussels carpet (which measures 27 inches), there are necessarily two hundred and fifty-six reels or bobbins in each frame.

*For tie-ups of the Jacquard-harness, the reader is referred to "The Jacquard Machine Analyzed and Explained," for sale at this office; circulars upon application.

Fig. 3 is a diagrammatical view of the lower portion of a Brussels carpet loom, given more particularly for the purpose to show the process of the formation of the fabric in the loom.

Examining this illustration we find at the right hand of it a creel a for holding the reels or small bobbins, b carrying the pile warp c. Each pile warp is supplied with a small weight d in order to put tension on each individual thread. Examining the affair more in detail we will see that each pile warp thread c is subjected to a double tension, since the thread after leaving the bobbin b

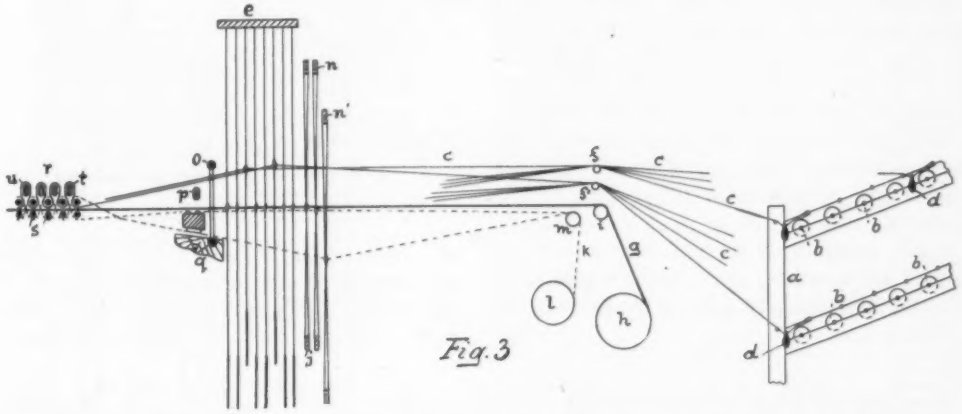


Fig. 3

once more comes in contact with it before traveling to the harness e. Previous to reaching the harness e, the pile warp passes over the whip rolls f f′ respectively. Stuffer warp g as coming from its warp beam h, passes over whip roll i and into its harness j. The ground warp k as coming from its warp beam l, passes over whip roll m, toward its two harnesses n, n′ respectively, and which as mentioned before work on basket weave, i. e., rib weave principle.

In our illustration we have shown all stuffer warp drawn on one harness, j, which is done for the sake of simplifying the affair; in practical work, as a rule, 2 harnesses being used for this purpose, or as is frequently done, this stuffer warp is operated from a few spare needles of the Jacquard machine. Other letters of reference in our illustrations indicate thus: o is the reed, p is the shuttle, q the lay and r the section of the last portion of the woven fabric, s indicating the sections of the body filling, t, sections of the wire, and u the loop of the pile warp, as formed by means of passing over said wires.

By the Jacquard apparatus e, it is possible to draw any particular thread to the surface of the woven carpet, and in all cases every color employed in the production of a carpet is brought to the surface at certain places. It thus often happens, that the number of frames of worsted employed in the manufacture of a carpet is indicated by the number of colors discoverable in the pattern; but this is not always the case, for it is not uncommon to arrange a "frame" of two or three different colors, for example, one of the frames may be dressed one end of one color to alternate with one end of another color, in this manner imparting a richness to the fabric superior to one color; again, one of the colors may be twist of two colors, in this manner still further increasing the richness of the carpet.

The surface of a Brussels carpet consists of loops, which results from the warp threads being passed over a stout wire, which wire resembles in appearance a common metal meat-skewer with looped end, the wire, however, being over 27 inches in length.

(To be continued.)

As early as 1678 a loud outcry was made in England against the admission of goods from India which, it was maintained, were ruining the woolen industry, cost 30 shillings a yard and were only the shadow of a commodity when procured.

CORRESPONDENCE AND NOTES

Upon Textile Topics at Home and Abroad.

LENO CLOTHS.

BY WILL NELSON.
Head Instructor in Warp Preparation and Weaving, Lowell Textile School.

(Continued from November.)

In the previous issue we considered only the loop turned to the right of the standard harness; this is called a right hand doup, but the loop can be turned to the left as shown at Fig. 3. The two kinds of doups are readily distinguished; the crossing thread is always drawn in to the right of the ground threads for a right-hand doup, and to the left for a left-hand doup.

Right- and left-hand loops are often made on the same doup shaft, thus allowing a great variety of patterns to be made with one

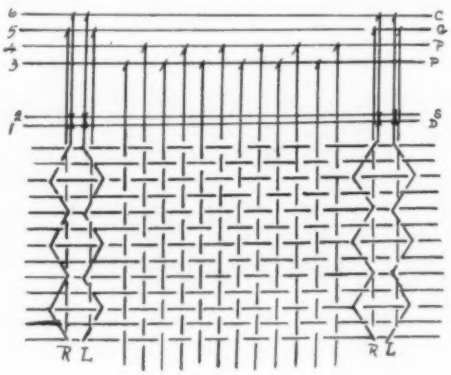


Fig. 11.

doup and standard. Fig. 11 shows a simple pattern made by one left- and one right-hand loop, with one ground thread for each of the crossing threads; the main part of the cloth is plain, as shown by the drawing-in draft at the upper portion of the figure; the first and second harness indicating the doup and standard, which, as we know, are connected together by the passing of the loop through the eye of the standard. The 3d and 4th harness are for the plain cloth; 5th, the ground thread harness; 6th, the crossing thread harness. L indicates the left hand loop; R, right hand loop. A cloth made from that design would be used for fine shirt-

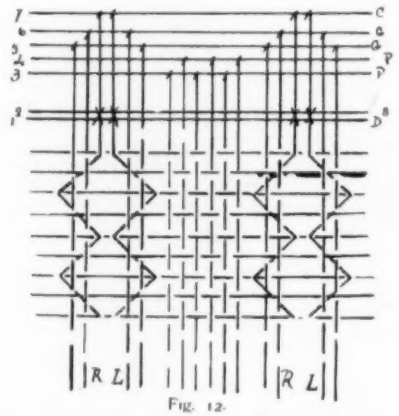


Fig. 12.

ings where a prominent figure is not desired. The counts of yarn might be: plain stripe, 60's warp; crossing thread, 2/30's; ground thread, 2/30's; generally the crossing thread is of a different color from the ground thread, giving a very rich effect. If there is the least possible chance of the heddles being crowded, it is better to use four harness for the plain cloth.

Fig. 12 is of the same order of leno as Fig. 11, but will give a more pronounced stripe owing to the use of two ground threads to one crossing thread. The more pronounced the crossing thread has to be, the more ground threads must be used to throw the crossing thread on the face; in addition, the crossing thread must be proportionately coarser.

By using double threads instead of single for the ground, or three single threads for each crossing, Fig. 12 could be made very

pronounced. The advantage from using three ground threads will be readily seen by a glance at the figure. The heavy line represents the crossing thread, drawn through a

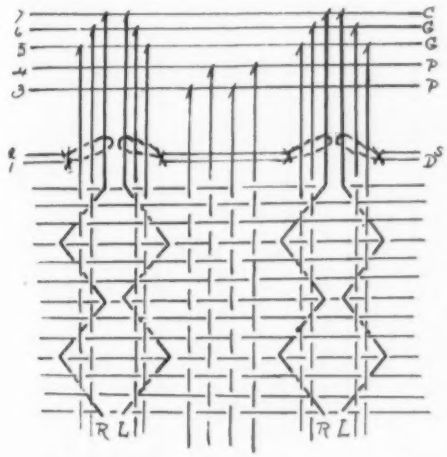


Fig. 13.

loop to indicate the position of the doup; the two lines crossing each loop represent the ground threads, and it will be noticed that the ground threads are woven plain. At A point, because the two threads will run together. By the use of three ground threads each point would have the nearest ground thread working opposite to the crossing thread.

Another way to overcome the fault if prominence is desired, is to weave two picks with the ground threads before the crossing thread is raised. Fig. 13 shows such an arrangement.

Fig. 14 shows a variety of stripes that can be woven on the same piece of cloth by the use of one doup and standard, and changing the turn of the loops to the right or left. Seven harness only are required to weave these patterns, unless there are a large number of plain ends for the body cloth; then two more harness would be used.

There are two distinct kinds of doups; the top and bottom doups; these doups determine on which side of the cloth the figure shall be woven. The top doup is placed above the yarn and doups are drawn down to tie in the crossing thread; the cloth is woven right side up with such a doup. The bottom doup is placed underneath the yarn, and the doups are lifted to tie in the crossing thread;

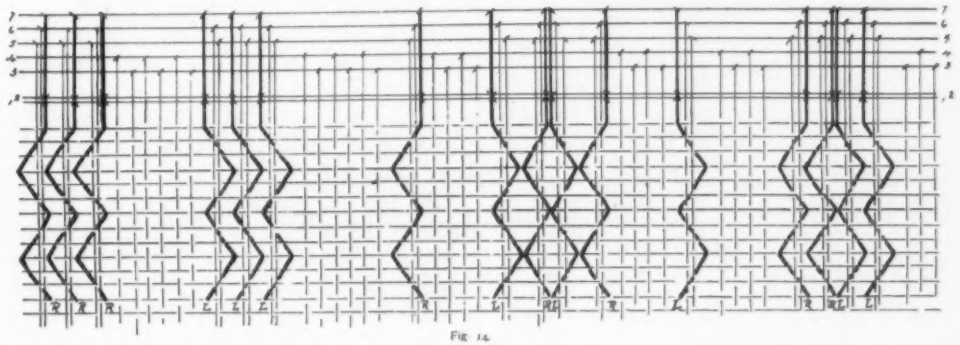


Fig. 14.

the crossing threads are lifted, the filling passing under, while the nearest ground threads are down, the filling passing over; this tends to force out the crossing thread and will naturally make the point of the diamond more distinct. At A^1 where the crossing threads are again lifted to form the outer points of the diamond, the nearest ground thread is also lifted, the filling passing under both of them; this will tend to make this point less distinct than the upper

the cloth is woven wrong side up with such a doup. The sketches shown so far represent the use of bottom doup. As it will be noticed, the crossing thread is underneath the ground threads and the picks of filling, except where the thread is lifted to tie in at the points of the diamond.

It is only within recent years that a cloth such as shown at Fig. 15 could have been woven with top doups in an open shed dobby, but the reasons why such can be accom-

plished at this time will be given in a later issue. A glance at the two latter figures will show the difference in the working of the crossing threads. Fig. 15 requires the use of two sets of doups; one set for the right and left hand loops that work in unison, and one set for the two left hand loops.

The figures indicate the number (11) of harness required. The letters denote the particular harness: D for doup shaft; S, standard harness; P, plain harness; G, ground thread harness; C, crossing thread harness. A very pleasing effect is produced by the figure woven with the first set of doups, and one or more diamond figures could be added before the long figure is woven in, without detracting from the effect; having several empty dents between the hemstitch stripe shown in the middle of the pat-

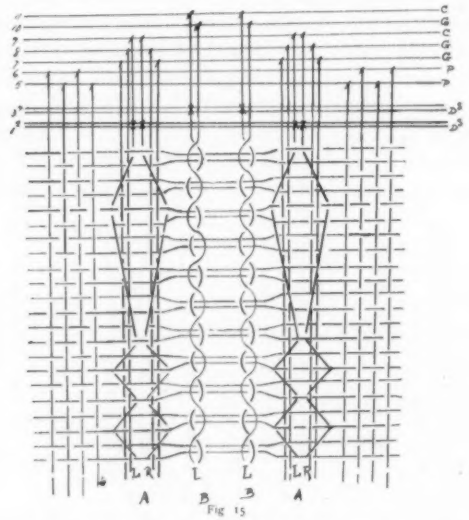


Fig 15

tern gives a lace like effect to the cloth. This pattern will adapt itself to a wide range of yarns. For the stripes marked A, from 2/40's to 2/20's may be used for the crossing thread; the ground threads of the same counts as the plain cloth from 40's to 75's. If the finer numbers are used, the ground threads would be double, that is two 75's threads in one eye of the harness. For the stripe marked B, the counts of yarn may vary from 2/40's to 2/80's, the ground and crossing threads being the same.

Fig. 16 represents an all over leno effect of the lace order, and is called a three and one leno. If the entire cloth is made in this style, it is generally used for cap linings, but very often it is used in the stripe order on fine

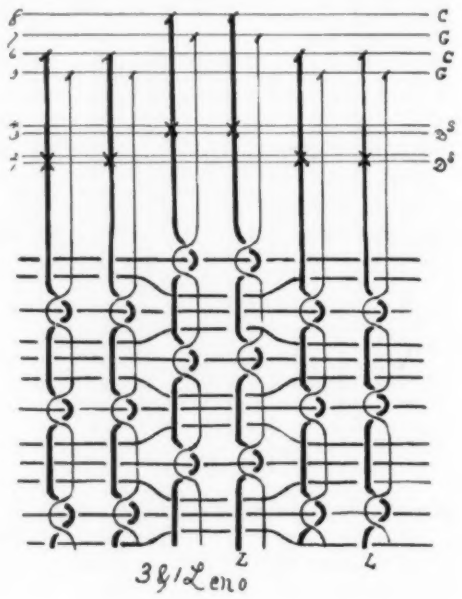


Fig. 16.

cloths, the picks being varied to give a more lace like effect, having five picks where the three are now shown, and three single picks instead of one. The bottom doups would be used in the construction of this cloth, using yarns from 2/60's to 2/120's.

Fig. 17 will commend itself for making cloths of the highest order. It is a lace leno and plain check, with a twill and net leno stripe on either side of the check. The same principles used in making the simplest leno are used in the production of this cloth. The portion marked A represents the leno check. Two ground and two crossing threads work together, so that a more perfect plain cloth can be obtained in the plain check. The letters to the right of the design indicate the order of weaving. Commencing at the top, P C means a plain cord pick; it will be noticed that the line is much heavier than those representing the other picks; two picks of filling are placed in one shed, the counts being single 12's. There are two reasons for

using this count of filling as a cord pick; first, if two ply yarn was used it would be too harsh on the fine warp yarn, especially when the pick was beaten in by the reed, resulting quite often in the breaking of the yarn; second, two strands of single yarn would be far less prominent than two ply yarn would be, because the single would lay closer together; in addition, the warp would sink somewhat in the soft filling. The use of a cord pick also answers a double purpose: First, it tends to spread the threads more evenly after the leno check. As the picks and threads are closer in the leno check in some places, more open in others, by reason of the crossing pick, this unevenness is necessary to give the lace like effect; second, the cord pick somewhat matches the twill stripe. A plain pick is shown at P C, crossing pick. There are three plain picks and one crossing pick; one ground and one crossing thread are raised for one plain pick; the second ground and second crossing threads are raised for the second pick, this order being followed out for the plain picks, whether in the plain check or leno check.

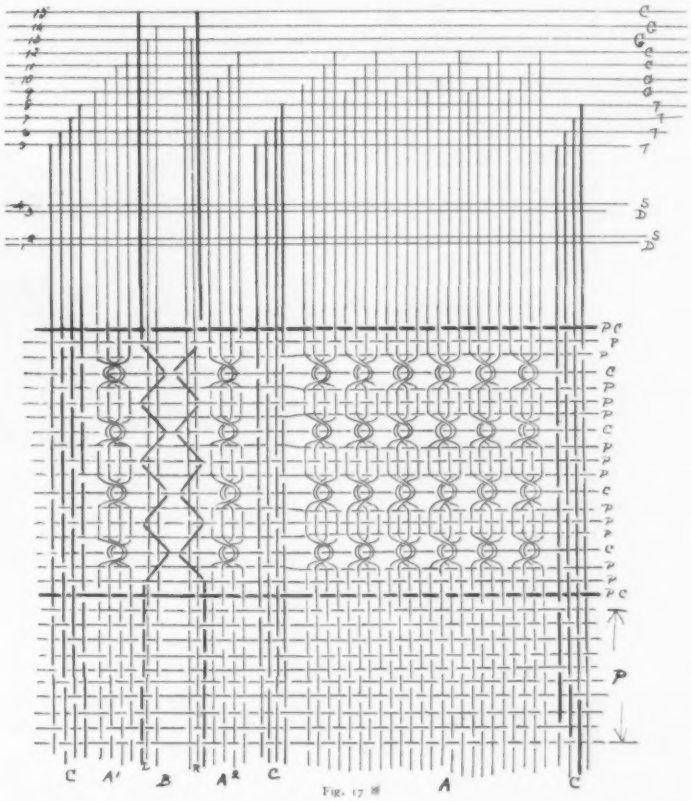


Fig. 17 [illegible]

For the crossing pick the two crossing threads are raised, the two ground threads being left down; with this pattern the doup would be raised every pick; this is because of the two threads that pass through the doup. When weaving plain cloth and not making the crossing pick, one of the two threads will be raised every pick and the doup must be raised with it. The doup must also be raised with the standard harness to make the crossing pick.

Stripes marked A^1 and A^2 are the same kind of leno as the check, A, and are used to make a firmer stripe alongside the twill threads. B is the net leno stripe; C the twill stripe. The yarn used in this cloth would

be single 60's to 90's. For the stripes A, A^1 and A^2, ground and crossing threads the same. The ground of stripe B would also be the same size; crossing thread, 2/20's. Stripe, C, would have 2/40's. The filling would range from 75's to 100's. We would use a bottom doup for the five yarns and a top doup for the coarser stripe on two bottom doups, but a single lift dobby would be the better machine to use.

FINISHING WOOL AND MIXED FABRICS.

XXX.

BY N. REISER.

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CRABBING.

No other machine is employed for finishing so many different kinds of goods as the crab, the object of which is to "set" the fabric. Among the uses to which this machine is put are the following:

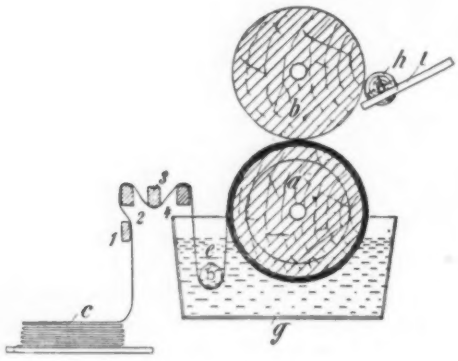


FIG. 112.

1. For removing the size and other impurities from light worsted goods.

2. For setting or fixing the fabric so as to reduce the shrinkage in the subsequent processes of washing, cooling and rinsing.

3. As a supplementary washing process for removing the residue of soap and alkali. This is particularly the case with white pieces which are to be subsequently dyed shades that are applied with difficulty. The water should not be too hot, otherwise the goods will be turned yellow.

4. For removing washing and fulling wrinkles and streaks. Very good results are obtained on light fabrics.

5. To saturate dry goods thoroughly. This is necessary before washing many kinds of goods such as hard cheviot fabrics, etc.

6. As a preliminary decatizing process. The goods are run from one-half to one hour

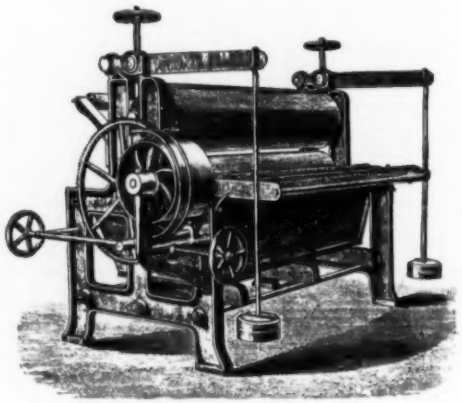


FIG. 113.

in the crab and then transferred to the decatizing machine.

Fig. 112 is a cross section of a simple form of crab. The goods are wound on the lower roll, a, which revolves, immersing the goods in the hot water contained in the tub, g. The cloth passes through a tension device and under the roll, e, before being wound on the main roll, a. Pressure is applied to the lower roll by the upper roll, b, and after the goods are crabbed they are wound on the roll, h. Fig. 113 shows a perspective view of such a crab. The water in the tub is heated from 100 to 140 degrees or higher when necessary. During that process the lower roll is constantly in motion so that the cloth is alternately immersed and brought into the air.

Crabs are built with two or more pairs of rollers and a corresponding number of compartments in the tub. Fig. 114 is a side view of a 3-roll crab, used only in very large mills. The first compartment and pair of rollers are used for saturating the goods with hot water, the second for washing in alkaline liquor, and the third for cooling the goods.

If there is no oil or dirt in the goods they are treated in the first compartment with boiling water, in the second with lukewarm, and in the third with cold water. In recent years a decatizing and steam blowing attachment has been connected with the crab as just described, so that after being crabbed the goods are wound on a perforated roll and the steam is then blown through them.

WEIGHTING WOOLEN GOODS.

Fig. 115 shows a machine which is generally used for weighting woolen and half-wool goods. The principal parts of this machine are the trough, d, for the weighting solution, and the two squeeze rolls, W1 and W2. The

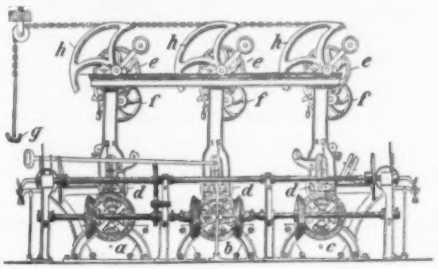


FIG. 114.

goods are first wound on the roll, k, and are then drawn by the machine over the friction device, 1, then over the guide roll, L1, then under the immersion roll, e, into the weighting solution. The cloth then passes between the squeeze rolls W1 and W2, to the folder F. The series of levers, a, b, c, are arranged to bring the necessary pressure on the squeeze rolls to regulate the amount of the weighting material that is to be left in the cloth. The rolls are iron covered with copper which is smooth and highly polished. The trough can be raised or lowered by the gear rack shown in the illustration. The liquor is heated by means of copper steam pipes. When it is desired to apply the solution to only one side of the cloth the trough is raised so that only the lower part of the lower roll, W1, is immersed in the liquor. The cloth passes directly from the carrier roll, L1, to the squeeze rolls, W1 and W2. In this way the liquor clinging to the lower roll is transferred to only one side of the cloth. If it is desired to impregnate the goods thoroughly with the solution from both sides of the fabric, the trough is lowered and the

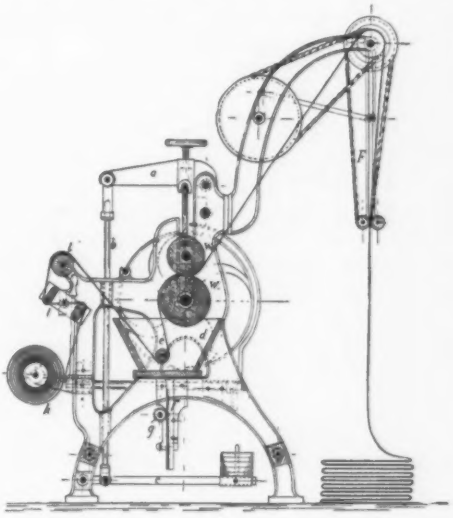


FIG. 115.

cloth passes through the liquor under the roll, e, and is then carried through the squeeze rolls.

(To be continued.)

Hot Air Slasher. Gebr. Sucker, Grunberg, Germany, have recently brought out an improved slasher. The yarn after being sized passes over skeleton drums inside of which are placed ventilating fans. The lower fans draw the hot air from the steam pipes below and force it through the yarn. The upper fans can be arranged by valves to give either an additional circulation of the hot air or supply fresh air to the drying room from the outside. By means of an adjustable friction device the tension of the yarn can be arranged as desired. Opposite sides of the yarn are alternately exposed to the open air.

Paper Spools and Tubes. Emil Adolff, Reutlingen, Germany, has recently made important improvements in his paper spools and tubes. The new product is said to be more impervious to steam and water. Many European mills have substituted them for their wooden bobbins and spools.

MEMOIRS OF A VETERAN MASTER MECHANIC.

BY EBEN GOULD.

(Continued from December.)

When I first went to work at the Madderkirk Mills, they had rather a strange way of keeping the working time of the help. Each man in the shop kept his own time, and once a month the paymaster would come round and get each one's time from him and ask him how much money he wanted; they settled up only once a year. After getting each man's time, the paymaster would come around in a few days and pay the money called for; the balance being carried over until the yearly settlement.

I thought that it was a queer if not a foolish way of keeping time and one likely to cause trouble, especially if anyone was disposed to make trouble. To avoid any misunderstanding about my time, I got a book in which I kept a note of the hours of my week's work and of all my time nights and Sundays. Then on every overtime job I would write down the job on which I worked, how long it took, and the names of the men who worked with me, thereby being able to prove every hour I had worked. At the end of each month I gave in the number of hours altogether. No one knew that I kept a journal of all my work.

Well, time went on and no question of time came up until during the first year of the civil war, when the mills began running night and day; then the overtime began to come in very heavy.

It was during the month in which I moved the old engine from its bed outside the mill and set it up so as to keep everything going until the new engine was ready to start, that I had to extend the shafting to five different lines of shafting running through the new mill that had just been added. Each of these lines had to have one 16-foot length taken down, and a coupling fitted on it; at was then put up and belted to the new shaft. All this had to be done Saturday night and Sunday, and was all done ready to start on time Monday morning.

Besides this extra work, one of the big Philadelphia cloth presses broke down by the thread stripping from the hub of a worn gear and binding the long screws which raised the bed piece to press the cloths; this press had to be taken down and new screws and gears put in and set up.

All these jobs were ordered personally by Mr. Twitcher, and when done, he had expressed himself as being well satisfied, saying he did not think I could get them done in time to start.

At the end of the month I could see that trouble was brewing. I gave in my number of hours for the month, which was the largest month's work I ever did. Several days later Mr. Twitcher came to me and said:

"You have been giving in more time than you worked and I won't pay it."

"Oh, yes you will, Mr. Twitcher," I said, "you will pay every cent of it."

"No one could work that number of hours in one month," he said.

"I agree with you that no one ought to work so many hours," I replied, "but, Mr. Twitcher, I have not charged one hour's more work than was done or that you did not order yourself, and about which you did not express yourself as being well satisfied. I can tell you of every hour's work I have done since I first came to this mill. I saw from the first that one was liable to get into trouble, and I have kept an account of every job I have done, who worked with me, and can prove all my time, and you will pay every cent of it, and I know you will be glad to do so."

"Well," he said, "I should like to see your account."

I offered him my book, but he said:

"I only want you to copy off last month's time and give that to me."

"All right," I said.

I knew very well that some stuff had been talked to the new paymaster, as there were all sorts of stories circulated about my cheating in time, and that I had not made any deduction for any day time when I had been away, the others supposing that I had done as they did, not keeping an account of every hour day and night.

About four hours after his talk with me, Mr. Twitcher came in the shop as pleasant as

could be. He asked if there was not a wool picker in the loft of the shop.

"Yes," I replied.

"I wish you would get it down and set it up in the picker room," he said.

I handed him a sheet of paper, saying:

"Mr. Twitcher, you look over that account, and then come out and tell me what you think of it."

He took the paper and left the shop without saying anything further.

I did not hear anything from Mr. Twitcher during the month, but I did hear that the paymaster had told several parties that Mr. Twitcher was looking for a man to take my place, and as soon as he found one I should have to go. I kept quiet and did not say a word to anyone, but could not understand why Mr. Twitcher did not speak of the matter. He came every day to the shop, and was as pleasant as anyone could be, but he only spoke about the work.

On the first day of the following month after the time had been given in, one of the old stand-bys came to me and asked me if I could tell him all the time he had worked with me, but none of the other time. So it went on for a week, when Mr. Twitcher came in, went up to the man who had been so anxious about his extra time, said something to him and went out immediately. I never saw anyone's lower jaw drop as that man's did. He looked as if he was stunned.

"What is the matter?" I asked.

"Discharged," he replied.

That took me back a little, for I did not know what was the cause of it.

Several hours later, Mr. Twitcher came into the shop and said:

"I want you to keep the time of all the repair hands, carpenter, blacksmith, engine and boiler men, and all the outside men. I like your way of keeping time, it gives a great deal more satisfaction when you can tell what you have done."

"Mr. Twitcher," I said, "it was reported all over the village that you were looking for a new man and that I had to go."

"No such a thing," he said, "I only gave those that said you had not set down your time while out, the same test I gave you, to bring in what they had been doing during the last month, and they could not account for one-half of their extra time. Three years ago they reported stories about you to me, and got us into a misunderstanding, which you cleared up in a few words, and then I told them if they ever got us into any more trouble they would have to go. This man was one of them, and now he is gone and will not be here to bother us again."

After this, Mr. Twitcher was as pleasant a man as I could wish to work for.

Several weeks later, the new engine was ready and started driving all the works of the new mill and picker house.

I could never understand why Mr. Twitcher kept all the machinery of the mills in so many different rooms. There were three card rooms and three boss carders; No. 1 had eight sets of cards, No. 2 had about eight sets, and in the same room were four jacks. Now room No. 1 was plenty large enough to hold all the cards in Nos. 1 and 2. No. 3 had six sets. Later when the new engine was put in, there were six sets more added.

No. 1 weaving room had on one side all the dressers, on the other the looms; No. 2 had nothing but looms, all of which could have been placed in No. 1. No. 3 in the new part of the mill was up to this time (1862) not half full. Of course, each room had a separate boss weaver, and I used to think that in respect to overseers the mill was like the old lady's kitchen, where too many cooks spoiled the broth.

When I went to the Maverick Mills, there were three card rooms and three boss carders. Every set of cards could have been easily placed in No. 1 room, so that the mill would have needed only one boss carder.

After the new mill was built, all the looms were on a level in both mills, and the cards, which were double in number, were in two rooms on the same floor and one boss carder was over all the carding, as well as one boss weaver, so that things went more smoothly.

(To be continued.)

It is not known where calico printing originated; it was not practiced in Europe till the seventeenth century.

COTTON COMBERS.

BY J. W. NASMITH.

(From a lecture recently delivered at Oldham, Eng.)

Combing is an important process in cotton spinning, and has hitherto been confined almost exclusively to fine spinning, but is destined in the opinion of many to be largely extended in the near future, since the demand for better yarn is every day more marked. Combed American yarns would surely come into vogue now that they could be produced in large quantity at a comparatively small cost. The works of Messrs. J. Hetherington & Sons, Ltd., might be called the nursery of combing, for it was there that the original idea of Mr. Heilmann, of Mulhouse, was elaborated under the able guidance of Mr. John Hetherington, who also perfected the Pinel Lecceur comber, the first of which was erected at the mill of the late Mr. Hilton Greaves, of Oldham.

In September, 1901, the Nasmith principle was applied on the Heilmann framing in the first place, which of course imposed many restrictions on the mechanical disposition of the parts. The results, however, demonstrated the value of the invention, and the construction of a new machine was at once undertaken with framing designed for the purpose and completed in April, 1902, and in June of that year commenced its career in the mill. At the present time there are 289 machines at work or on order, 182 at home and 107 abroad, the distribution at home being Oldham and district, 73, Bolton and district, 49, and 60 variously distributed in England and Scotland, a result which showed that Oldham was as enterprising as ever.

Proceeding the lecturer formulated the conditions necessary to obtain a perfect yarn to be chiefly the following: Absolute cleanliness, parallelization of the fibres and removal of all fibres below a certain length, leaving the length of staple as uniform as possible. The two first conditions were practically quite realized by the combing machine and the latter approximately. The carding engine was in reality only an opener somewhat refined, which, whilst taking out a good deal of dirt left much that ought to come out and exercised no selective action on the length of fibre taken out as waste and made no attempt whatever to lay the fibres parallel to each other, which was left to subsequent drawing to accomplish.

Heilmann formulated the combing problem to himself in the following words: "To divide a suitably prepared lap into tufts comb each through its entire length, remove all dirt and nep and fibres below a given length, lay the remaining fibres quite parallel to each other, and reunite the tufts into one continuous even sliver." How well he succeeded in solving this problem was evidenced by the favor his machine had been accorded by the fine spinning world for the last 50 years, and it would appear that the cleaning and parallelizing power of his machine could not be improved upon. But in the light of present day requirements it had several defects. The production was small in comparison to the space and wages required. The piecing, though appearing perfect to the eye, was proved not to be so by the cloudy sliver seen at the draw-box of every Heilmann comber, especially on medium staples, whilst it was impracticable on staples below an inch. Finally the fibre taken out as waste was not sufficiently under control, particularly on short cottons. These were the chief reasons why combing had been almost exclusively confined to the finer branches of the cotton trade. But, given a comber with a very large productive power, producing indeed more than a card at its highest rate for tolerable work, there seemed no reason why the use of the comber should not extend to all the better class of medium yarns. It would be premature to say that for this class the card was about to be degraded to the rank of a scutcher, but signs were not wanting to indicate a move in that direction, the production of the card being pushed to its highest limit, irrespective of the cleanliness of the product, this and the parallelization of the fibres being left to the comber. Whilst a yarn so produced fell short of what was expected of a combed yarn in the Bolton sense it was far superior to a carded yarn in cleanliness, evenness, and strength, and cost very little more to produce. It was in this direction that a large development was looked for in the fu-

ture. In designing the Nasmith comber four objects were aimed at: Double the production, quality for quality; a longer overlap to gain a better piecing, and application of the machine to all staples; simplification of the mechanical detail; and finally more complete control of the length of fibre taken out as waste. It was claimed that these advantages had all been attained.

A comparison of production was then given, showing that in the case of the Nasmith the floor space, power depreciation, and repairs were halved, whilst the production for the same wages was increased 65 per cent., this applying also to the preparing machines. The overlap and piecing were next discussed, and it was shown by the aid of diagrams how a much longer overlap is obtained on the Nasmith comber than on the Heilmann, permitting the application of the machine to combing the shorter staples, which cannot be worked on the Heilmann.

The simplicity of the machine was touched upon and it was explained how the noisy intermittent cams on the Heilmann have been replaced by smooth continuous motions derived from a crank and an eccentric on the Nasmith, whereby both the noise and the wear and tear are very greatly reduced and the life of the machine materially increased. Finally the important question of waste was dealt with, and it was explained that in the Heilmann about 2 per cent. of waste is made that does not contribute to the cleanliness and that this, which is a valuable item, can be saved on the Nasmith machine, whilst for low combing the waste can be reduced far below the limits attainable on the Heilmann machine.

Finishing Process. F. du Closel & Blanc, Lyons, France, have recently perfected a process of finishing fancy plush goods in which the design is obtained by a printing process. The goods are first treated with a gummy dressing which retains its sticky character until the goods are finished.

For many years Russia has been the chief flax-producing country of the world, furnishing nearly four-fifths of the fibre consumed by all countries.

MILL WASTE.

BY ELMO.

ITS PROPER CARE AND PROFITABLE USE.

Next to the importance of avoiding unnecessary waste in the woolen mill, comes the proper care and profitable use of that which of necessity accumulates. The custom of some mills, of turning their waste into a product of lower grade, is advisable, when applied to such waste as cannot be more profitably used. As stated in a previous article upon the waste question, much of the stock that goes into waste, is thereby greatly depreciated in value; and anything that can be done to lessen this depreciation, and to render it more valuable, either to use or to sell, will prove a direct advantage to the mill.

Not long since, the writer was privileged to examine some yarn waste from a mill where a variety of work was being done, chiefly of fancy cassimere character, and the manner in which it was mixed, as well as the foreign matter which was mixed with it, showed that there was a deplorable lack of care and system in the mill as to this question.

There were all colors and mixtures in a conglomerate mess, heddle wires, bits of leather, belt hooks, broom corn and even bread and doughnuts, the fragments of the "full dinner pail" which the weaver had failed to devour at the noon lunch.

It would require considerable labor to remove the rubbish, in order to make it safe to run through the picker or garnett machine, and even then it would not promise to make suitable stock to use again, without being re-dyed, as it was such a strange mixture that it would not match any regular mixture being used in the mill.

The mixture of the foreign stuff with the waste was certainly inexcusable, and by proper care the most of the waste could have been rendered of much greater value to the mill, and suitable to use without the expense of redyeing.

The mill was using a percentage of shoddy that cost about 20 cents per pound, and constantly making waste that would not sell for more than fifteen cents, that should have

been used, and by proper care would have been more valuable than the shoddy.

To get the most out of the weave room waste, each color and mixture, so far as possible, should be kept by itself. Although we are aware that the system we propose is not very generally carried out, we know from experience it can be done, and it not only makes the most out of the waste, but in a measure avoids its accumulation to any great extent.

There should be a suitable receptacle for each kind of waste, at the loom, and the weaver should be taught to keep the different colors and mixtures by themselves.

It might seem that this could not be done, as in case of pick-outs, the different colors become too thoroughly mixed for separation.

Very true, but that will be provided for.

In making the filling boxes, it is customary to have them divided into apartments for the different kinds of filling. Either in connection with this, or a box by itself, or bags if thought best, have separate places for the waste. One for each principal color or mixture, and one for such as cannot be separated, or is not worth separation.

If the cloth should have three leading colors, they could then be kept entirely separate, and in changing shuttles, the waste from the bobbin could be put into its proper place.

In picking out, or other work where the different colors get mixed, the waste produced would go into a place by itself, and if thought best also, the waste from plaiding threads and other colors that would not amount to enough to be worth separating.

By this means, only a very small portion of the waste would require to be dyed, and when the whole was gathered up from all the looms, it would be found that a very large percentage of it would be divided into lots representing colors and mixtures being made and used; and when converted into shoddy, could be put back into similar mixtures, and thus take the place of so much new stock in the lot; if not quite equal in value, it would at least represent a higher value than it could possibly represent in any other way.

That portion which would be a mixture of the various kinds, could be used as thought best, with the assurance that its condition was a "necessary evil" and not the result of a reckless mixture of the whole.

The possibility of putting much of the waste back into a like mixture, is not the only advantage, for by a little simple calculation, it can often be used in other combinations.

For instance, a mixture of fifty per cent. gray can as well be put into one of seventy-five per cent. white and twenty-five per cent. black by adding enough white to make the desired proportions, and making due allowance for the grease the waste contains.

After a little practice, the weaver becomes accustomed to the plan, and by having each kind properly marked and separately prepared, it is ready for use at any time.

In carrying out this plan, the writer found it worth while to have the waste carefully looked over before garnetting. Very often a little more careful assorting was advisable, and it also made it possible to keep track of the manner in which the weavers were doing their part, and served to keep them on guard and faithful in the matter.

The yarn waste made at the spoolers and the dressers, and such as is cut out at the loom when the warp is woven, should not be mixed with the filling waste, being harder twisted, it can be much better handled by itself.

Of course the different kinds of spoolers' waste and much at the dressers' waste can be properly separated, and the same care should be taken.

By suitable receptacles for the waste, and a little care, it is entirely unnecessary to have any rubbish mixed with it.

For yarn waste, the garnett machine is by far the best for converting it into stock for carding, but it can also be done by the shoddy picker and subsequent carding.

What is true of the desirability of keeping the different kinds of yarn waste separate, is equally true of the card room waste, more especially that portion of it which is clean.

In this department there are three kinds

of waste, viz: the clean waste, the flyings or droppings beneath the machines and the strippings.

The first includes the broken portions of roving, roping and other clean stock that accumulates on and about the machines.

As in the weaving room, there is some of this that is bound to get mixed, but the most of it can and should be kept separate, and by proper care may often take the place of the best stock in other lots. Much of it having gone through one or more machines is rendered cleaner than when in the original mixture, and great care should be taken to keep it apart from the droppings and strippings.

The waste that accumulates beneath the machines, which we designate as flyings and droppings, should be carefully kept by itself, as it contains more or less dirt, shives, and dead and kempy stock that are by no means an advantage to the mixture or the work. The quality of this waste, however, depends very largely upon the character and condition of the stock.

Some wools might be sufficiently free from any defect or foreign matter to render this waste of considerable value after being properly dusted.

But as a rule, it is a little coarser in quality and often contains inferior and dead fibres that render it more suitable for a low grade fabric, than to put back into the quality from which it came and cause an increase in the percentage of waste in each succeeding lot, if the practice is followed up.

In this connection it may be said that recent improvements, by which the better portion of this waste is carried back into the card, leaving only the more worthless stuff, tend somewhat to a solution of this part of the question, rendering the portion left beneath the machines of too doubtful value to be worth consideration. The card strippings do not differ very materially in quality from the droppings, except that they contain a greasy and gummy accumulation that often renders them of questionable value.

The only profitable use a mill can make of these lower grades of waste is in connection with the production of a low grade fabric for which they may be suitable, or in a cheap backing for heavy weight goods.

A mill that is running upon one grade of work, and that of fine to medium quality, will do as well to sell this kind of stock for what it will bring, as any attempt to use it is likely to cause trouble.

It will always pay, however, to remove all the dirt possible by a careful dusting, as the buyer of such stock is usually a good judge of shrinkages, and will take no chances on heavily loaded waste, and it will pay to present it to him in the best possible condition.

It is sometimes the case with very low stock, that the strippings contain so little of value that it is more profitable as fuel to add to the "dump" than anywhere else. The good judgment of the man in charge can best determine regarding this.

Every well equipped card room should have a large basket or other suitable receptacle for each set of cards, one extra for the mixed waste, in which to keep the clean waste that accumulates, from which it should be sheeted or bagged and distinctly marked to designate the kind and quality, so that it will be ready for use when required.

Every carder will understand, that if properly and judiciously done, some of the clean waste can be broken into the first breaker feed, and so disposed of at once.

But without good judgment this may be overdone to the detriment of the work. The waste from beneath the cards, as well as the strippings, should be carefully dusted, as it accumulates, and used as may seem advisable.

As "waste begets waste," the help in the carding room should be taught to keep things in order, and not allow the waste to accumulate unduly upon the floor or the machines.

The manner of doing the work in the spinning room renders it comparatively easy to care for the waste and keep each kind by itself.

Aside from the flyings, which are well nigh worthless, the waste in this department is equal to the best, and can be disposed of the same as the clean waste from the card room.

By the method here proposed, every new lot should dispose of the waste of the previous lot of similar mixture, thus avoiding an accumulation and the possibility of its being in a condition rendering it unsuitable for use.

BLENDING OF COTTON.

BY DANIEL CLARK, FRANKFORD, PHILADELPHIA PA.

Read Before the New England Cotton Manufacturers' Association

Among the many little points that go to make up the sum total of accomplishments for a mill manager, the art of blending cotton is by no means the least.

In the making of yarns of medium numbers, say from 40's to 90's for the thread, hosiery and knit-goods trade a good knowledge of blending may be deemed a necessity, for there are numerous opportunities in which a manager can save for his company more than his salary for the time being, by the proper manipulation of the different types of fibre which are usually selected for these kinds of goods in that range of numbers.

Of course there is no known mathematical formula for blending and as to just how it should be done or just where it should begin is a question upon which many good men differ, as the judgment of men will differ, but a good cotton spinner with a fair knowledge of the effects of chemicals for bleaching and dyeing on the fibre should be able after a little practice to proceed without much difficulty.

Where yarns for bleaching are needed, it would not be advisable to blend or to allow any but the most spotless of fibre to go into the mix and the same rule would apply to stock from which goods of particularly bright or delicate tints were to be made, but for unbleached or for dull or heavy colors it can often be done with a saving that well repays the effort.

As each lot of cotton differs in texture, spirality, lustre, etc., from every other lot of cotton, the judgment of the individual must be the arbitrator on the question of stock, but the proper place to begin blending is a subject which will perhaps bear discussion.

Some contend that the only place to begin is at the picker and there is no doubt or question but that commencing at that point the most thorough mixture can be obtained, but I have known of instances where for some reason it was impossible or inconvenient to begin at that point that good blends have been obtained commencing at the drawing or at the sliver lapper when the stock was to be combed.

The object of blending cotton is to produce from two or more different kinds of cotton a stock which will be better for certain purposes than any one of those kinds or varieties alone.

For instance, Combed Egyptian Cotton of the type known as Bamia 1 3/8 inches staple should make good number 60's warp or thread yarns: it draws well, takes twist well and has a good lustre, but it is not as strong as some of the other types of Egyptian or some grades of American Cotton of equal length, but when blended with a certain percentage of American Cotton of the type known as Vicksburg, a strong cotton, but lacking somewhat in spirality and lustre, it produces a better yarn for the purposes named than would either kind alone have made and at a less cost than that of the higher priced of the two kinds. It draws well, takes twist in the roving well and spins into good, strong, even yarn.

Another instance; a lot of cotton selected for 80's warp yarn combed stock 1 1/2 inches in length, clean and strong, opened well, drew quite hard, but spun well, but in the dressing failed to take size well, which caused trouble in the weaving, but when this cotton was blended with a stock of equal length, but of more pliability this trouble was overcome and the finished fabric was satisfactory and produced at a slightly reduced cost than if made wholly from the stock as originally used.

Now there are some, and capable men no doubt, who think that there is nothing in it, or it is adulteration at best, but if questioned most of them will admit that they have never tried it. As for adulteration, how much is bought in the way of supplies, oils, dyestuffs, soaps, etc., that has not undergone the process of blending. Question the manufacturers of those goods and they would probably tell you, and truthfully too, that the process was necessary to produce an article of merit. Why, then, should not the fibre upon which we work and which we know possesses such vast capabilities, why should not that too be blended, and be improved by the process?

Questions and Answers.

Under this head we undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

For reply to questions that are not of general interest to readers of textile journals, such as those relating to the composition of yarns, analysis of fabrics, etc., we will charge the enquirer with the cost of the investigation,

Singeing Machine for WorstedYarn.

Editor Textile World Record:

Please advise me who are makers of genapping machines for singeing worsted yarn. Are jack spoolers fitted with gas jets so the yarn can be singed while running from one spool to another?

Gas Jet (385.)

Singeing machines for worsted yarn are made by Joseph Stubbs, Manchester, England. His American agency is the William Firth Co., 150 Devonshire St., Boston, Mass. The Stubbs singeing machines include frames for cotton, worsted and silk, and are so arranged that the yarn is singed while passing from one spool to another.

Speed of Beamers.

Editor Textile World Record:

What is the usual speed of beamers for beaming woolen warps? How long should it take to beam a 400-yard warp? Scott (354).

As the speed of the warp increases with the size of the yarn on the beam it is necessary to gauge the speed so that it will not be too fast for the yarn at the completion of the operation. About 9 turns per minute has been found to be satisfactory for woolen warps, and at this speed the beaming of a 400-yard warp would require about 20 minutes.

Nubs for Knickerbockers.

Editor Textile World Record:

How can I full woolen nubs for knickerbockers? The nubs I am using are too soft and I am told they should be fulled before being mixed in the batch. Tyler (387).

A woolen manufacturer informs us that the method he found to produce the best results consisted in making the nubs of fine white wool and then coloring them the shade desired. The boiling in the mordanting and finishing baths hardened the nubs so that they passed through the card without much damage. To prevent the nubs from passing through the false bottom of the dye tub a perforated copper bottom could be used; they could also be colored in a cheesecloth bag. Fulling the nubs is likely to mat them in bunches which have to be broken up before being used. They can be fulled by placing them in a bag, saturating with soap and warm water and pounding them in this condition.

Measuring Cloth in the Roll.

Editor Textile World Record:

Who is the manufacturer of the Standard cloth meter, used for measuring cloth in the roll?

Yardstick (396.)

If any of our readers know the manufacturer of this machine we should be pleased to have them inform us.

Paper Threads.

Editor Textile World Record:

I would like to know the process for making paper threads. Do you know the machines for it? I have seen some of this thread and would like to know how it is made. Spain (383.)

The only process of making paper threads with which we are familiar is one in which large rolls of thin tissue paper, about 40″ in width, are passed under a series of circular cutting knives, which are about 1/8″ to 1/4″ apart. It is then wound in narrow rolls, like ribbon rolls. These rolls are put into a twisting machine of special construction, usually of the throstle principle, and the paper is then twisted or spun into coarse yarn, such as is used for hat trimmings, braids, etc. We have never seen it spun very fine.

Rinsing Mercerized Goods.

Editor Textile World Record:

Is the water used hot or cold in rinsing mercerized goods? Mercerizer (393).

Most mercerizers are using both hot and cold water for rinsing yarns and warps. At one of our leading mills they have two compartments of caustic soda, two of running cold water and one of hot water. In an article in the December number of the Textile World Record mention is made of using first the warm water and then the cold water. This would indicate that the practice of rinsing is varied according to the ideas of the various mercerizers. In one of the largest piece goods mercerizing establishments in the United States they rinse first with cold and then with warm water.

KNITTING DEPARTMENT.

For Knitting Mill Machinery, Equipment and Supplies, see pages 232 to 253. Also Buyers' Index.

KNIT GOODS SITUATION.

The writer has just returned from a visit to the textile manufacturing district along the Mohawk valley, where he found matters in a chaotic condition owing to the tremendous advances that have taken place in raw material.

A prominent manufacturer is reported to have predicted, early in December, that there would be a famine in ladies' and children's low priced ribbed goods, and this prediction gives every indication of being fulfilled. Several manufacturers have stopped making this class of goods on account of their ruinous values, and at this writing, few, if any, of those who have been offering this class of goods for sale are willing to take any more orders.

The quotations given in our last issue, which were apparently too high for most buyers, have been advanced twice, and in most cases withdrawn entirely. The ladies' 6 lb. ribbed goods sold early at $1.90 were advanced to $2.00, then to $2.12 1/2, and are now off sale. The 6 1/2 lb. goods sold early at $2.00 were advanced to $2.10, then to $2.17 1/2, and are now withdrawn. One well-known manufacturer offered 8 lb. goods at $2.25, but has now advanced his price to $2.37 1/2. We are told that this garment is made of yarn spun on wool machinery and costs less than yarn used by other manufacturers of similar class of goods. However, it gives the garment a heavy feel, and that is what is looked for by the average buyer, and many of them are so well pleased with it that some large orders have been placed. An idea of the situation may be formed when this manufacturer was able to take orders for over two hundred thousand dozen winter weight goods in a little over a week without a sample line being completed and without a man on the road.

Nearly every manufacturer making ribbed goods is showing a garment at $2.75, and buyers are taking this priced garment better than in former seasons, evidently with the idea that there will be a larger business done at this price owing to the extreme light weight of the 25c. goods. 50c. grades of ladies' ribbed goods are offered at small advance over last season's prices; in most cases only 12 1/2c. per dozen, but the weights have been reduced about one-half pound.

We learn of some large orders having been placed on fine stitched goods weighing 8 lbs. at $3.62 1/2. Some of the far western trade have bought liberally of 9 lb. carded yarn garments at from $3.40 to $3.50 so as to have an extra heavy weight garment in the line in case their trade does not take the 8 lb. goods.

Children's straight ribbed cotton goods are being offered at from 7 1/2 to 10 per cent. advance over last season. The Lackawanna Knitting Mills have taken some orders at 75c. for 16, rise 25c., less 6 per cent., but have since advanced their price to $1.00 for 16, rise 25c., less 12 1/2 per cent. They are also showing children's straight ribbed worsted goods at $2.00, $2.50 and $3.00 for 16, rise 50c., less 15 per cent., and it is reported that they have done well with this line. There is no question but what there is a demand for children's ribbed goods to take the place of the flat garments, the same as has arisen in both ladies' and men's goods.

The Perry Knitting Co. was showing a boys' fleeced shirt and drawer with uncovered seams and weighing about 5 1/2 lbs. on size 32, at $1.92 1/2, but we understand they have withdrawn this from sale.

Robert MacKinnon and L. E. Harrower are both offering boys' fleeced goods weighing 6 lbs. on size 30 at $2.12 1/2, and it is on these lines that the bulk of the business will be done.

The prices on men's fleeces have advanced since opening in order to keep pace with the raw material, and goods that were sold last season at $3.25 and opened this season at

$3.50 have been advanced to $3.62 1/2, and standard goods with silk trimmings which sold last season at $3.65 and opened this season at $3.85 have been advanced to $4.00. It is reported that one large manufacturer took some large western orders at $3.67 1/2, which he now regrets.

In better fleeced goods, about the only lines meeting with any sale are Wright's goods, and on this line prices are about the same as last year. We are told that this concern has taken orders for some of their goods for export to China, and a peculiar feature called for by the Chinaman is to have the shirts open all the way down the front like a coat.

Lines of wool goods are all offered at last season's prices, and nothing particularly new is being shown.

The demand for union suits continues to grow, and considerable call is made for those opening down the front, and in these, as in vests and pants, the fine stitched goods are growing in popularity.

SPRING GOODS.

Little activity in Spring business has been noticed since last issue. Several manufacturers have stated to us their expectation of being able to deliver fairly promptly all the goods they have sold for January, February and March deliveries. There may be some difficulty on the low priced men's balbriggans, and one manufacturer informed us that he has two hundred cases all packed for which he has no orders, but for which he expects to get 20 to 25c. per dozen more than he would have been obliged to sell them for last August.

Ladies' full trimmed bleached straight ribbed vests are still offered at 65c. per dozen, and manufacturers of shaped goods at from $1.90 to $2.00 are accepting duplicate orders at opening prices if April and May deliveries are taken.

One prominent manufacturer of men's balbriggans asks 12 1/2c. per dozen advance for goods at from $3.50 to $3.75.

HOSIERY.

Operations at the present time are not particularly active. No repeat orders are being received for spring as yet. It is generally contended that buyers have bought very sparingly for spring, and that before the season is over they will need considerably more to round out the demand. One encouraging feature is that on lines of wool goods which have been shown for next fall a larger business has been secured than for previous seasons. During the last two years an increasing demand has been noted for wool hosiery. This is thought to be due largely to the fact that in ladies' and misses' fleeced goods especially the price has advanced to such a point that the difference between these and wool grades is not sufficient to cause buying of the cheaper lines, but rather has caused a demand for the wool goods which cost appreciably little more. This applies only to the cheaper grades. Certain salesmen for recognized lines of wool hosiery report that they have done a larger business for the coming fall than in several years.

SWEATERS AND BLOUSES.

The sweater market on men's and boys' goods is less active than for some time past, and prompt deliveries can be made on these lines in general. The ladies' blouse business on the contrary is good, and manufacturers are having difficulty in catching up with their orders.

It looks as if the knit blouse had come to stay for some time. Considerable business is also being done on knit golf vests, as the ladies have found that they are serviceable garments for house wear.

CHEMNITZ REPORT.

Large orders for staple hosiery have been placed lately. Buyers who have studied the situation thoroughly are apparently satisfied that no immediate reduction is likely, and have made up their minds that they must have the goods if they would keep their trade.

Spinners now have contracts sufficient to last them for some six months, and even if cotton should break it would not affect the price of the finished product to any extent. Wages cannot be reduced, and in the face of the present demand the chances are that advances will be asked and given.

Lace hose in new and difficult patterns are being shown and are readily being taken by

leading buyers. The better grades are selling more freely than the lower priced goods, and embroidered lace goods are selling well. Plain hose with embroidery are not selling in quite as large quantities as last year.

Most makers say there is no demand for fancy stripes, although one manufacturer has taken considerable business on striped Persian effects, also on stripes with tan grounds.

Extracted goods have dropped some since the season opened.

Men's plaited 1/2 hose are still popular, and are bought in large variety with small embroidered effects. Lace 1/2 hose are slow. The demand for tans is growing, and generally assortments with medium shades are selected

Glove makers are showing their fall lines, and knit gloves are taken only in solid colors so far. Silk lined cashmere and cashmerette gloves are being taken readily, and the finish of the latter has been so perfected that they look like cashmere and are taken more than ever. Gloves made with clasps are again in good demand and will be good for 1904.

DYEING UNDERWEAR.

BY ROGER WILLIAMS.

The dyeing of underwear is done by four methods; in the raw stock; in the skein; in the garment partly made up but not finished; in the roll just as it leaves the knitting machine.

The goods for dyeing in the garment are first knit into rolls, then cut and made up, but not finished; they are then counted into dozens, tied with strings and sent to the dyehouse. After coming to the dyehouse they are first boiled out, either in open kiers or vats, and after boiling are dyed in a cylindrical machine having six compartments.

This machine rotates through the dye, keeping the goods in motion and contributing to evenness of the color. These machines dye from 150 to 400 pounds in a batch so that case lots can be dyed in one batch. Care must be taken, however, not to run the machines at too great a speed and cause the goods to roll and knot up, as this will cause uneven dyeing and seconds will result.

After boiling out, the goods are washed in running water and then extracted; after extracting they are counted so that each compartment will have about an equal share of the batch and then the dyeing is begun. For light shades the goods are generally entered at 140 and run one-half hour, the salt or Glauber's salt added and the dyeing continued for one-half hour longer, when it is completed.

The accompanying illustration shows the well-known Klauder-Weldon garment dyeing machine, which is one of the best types of machines in use for this purpose.

The Klauder-Weldon machine has been in general use throughout the country for many years and most of our readers are familiar with its construction and operation. Among its advantages are the uniform application of the color, the large production, small amount of labor required, economy of steam and dyestuff, and simplicity of construction. The goods are placed in the six different compartments of the cylinder which revolves in liquor in the tub. The goods are thus alternately brought into the liquor and then carried around with the cylinder. During this passage the goods fall from one side of the compartment to the other, and thus are in a different position when entering the liquor from that during the preceding immersion. In this way all parts of the material are exposed to the action of the dye in the same degree.

The compartments are separated from each other by partitions of round wooden slats which allow the free passage of the liquor. Perforated doors in the outside of the cylinder permit the liquor to pass from the tub into the cylinder, thus maintaining a free circulation.

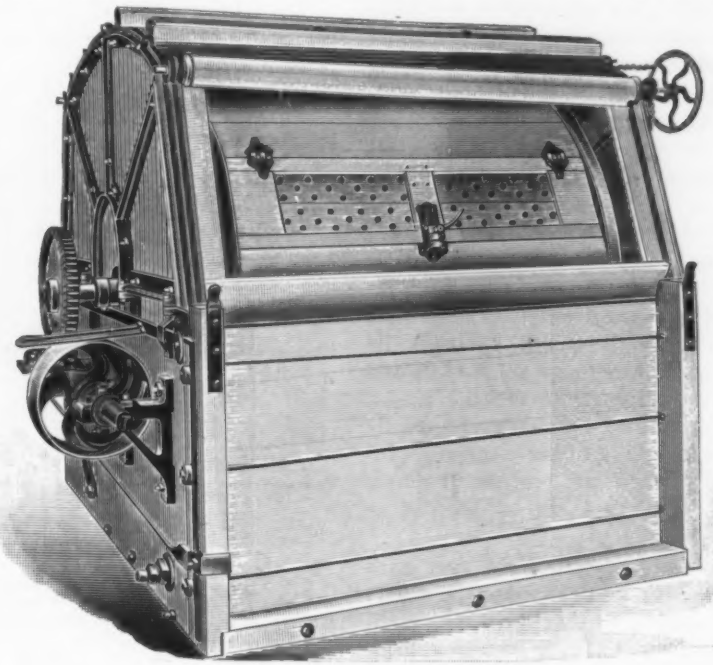
The machine is easily loaded and unloaded. When in operation its action is entirely automatic and requires attention only for the regulation of the steam and the application of dyestuff. As the liquor is practically protected from exposure to the atmosphere, very little steam is required to keep it at a boil. The volume of liquor is reduced to a

minimum as compared with the amount of material being dyed; this results in using the dyestuff to the best advantage.

The construction is simple and in some cases the cylinder is driven by pinions on a shaft located across the back of machine. The gears on this shaft connect with bronze gear racks that extend around the periphery of the ends of cylinder. From 150 to 400 pounds of goods can be colored at one time, and, if properly prepared for the dyeing process, will come out uniform in shade.

first placed on a movable truck, put into the dryer and left there until dry. The garments are next removed from the boards to be finished, that is, to have the bands and buttons sewed on and to be pressed and boxed. They are pressed between card board or leather papers under pressure of hot plates.

The system of dyeing knit goods in the roll is now coming into general use and is carried out as follows: The goods are sent to the dyehouse in the form of rolls just as they come from the knitting machines. These



THE KLAUDER-WELDON KNIT GOODS DYEING MACHINE.

The Klauder-Weldon machine is built for raw stock and yarn as well as knit goods, and gives equally good results on either of these materials. We lately saw one of the first of these machines to be built running side by side with one of the latest machines, and both were giving excellent results.

After being extracted the goods are sent to the boarding room to be shaped and dried. This is done by putting the garments on wooden forms called boards when they are wet and allowing them to dry in this stretched condition. The goods are dried by the well known hot air principle; they are

rolls are usually boiled out in an open kier, then put through a washing machine and extracted. After extracting they are dyed in kettles specially constructed for this purpose.

These kettles have a roll over which the pieces are passed, the ends being sewed together to make an endless piece, so that they are continually passing through the liquor until the dyeing is complete. The length of these pieces should be as nearly equal as possible so they will all get the same circulation in the same time. If one piece is, say, 100 yards long and another 200 yards in length, both traveling at the same rate over the reel,

one would pass through the liquor twice as many times as the other. This is likely to cause different shades in the same dyeing.

The dyeing of knit goods, whether in the roll or in the garment, requires care and experience. The dyes used are nearly all of the "direct" type, that is, colors which require no previous mordant. For light shades the goods are generally boiled for one-half hour in the dye before adding salt or Glauber's salt, and then the dyeing continued for one-half hour longer in order to complete the dyeing and thoroughly exhaust the dye bath.

The dyes chosen for this work are those which are fast to washing and hot pressing and those which are easily soluble and go on evenly. For very light shades the goods are bleached before dyeing, but in most cases this is omitted and the dyeing is done in the gray.

Whether the goods are dyed by one method or the other every care should be taken by the dyer to get the very best results; his batches should weigh as near alike as possible; in weighing out dyestuffs he should see that his weighings are correct and insist on having thoroughly reliable scales. A color can be thrown off shade very easily by an error in weighing either goods or dyestuff, especially when 100 pounds of goods are dyed with one-half ounce of dyestuff or even less.

Managers should provide their dyer with enough machines or kettles to dye the different ranges of shades, so that the dyer should not have to dye, say, pinks, browns and blues in the same machine, losing time and money cleaning out and changing from one shade to another.

The ventilation should be good, the steam should be carried out to prevent condensation on roof or ceiling of the dyehouse, thus preventing drops of dirty water from falling from the ceiling and staining light colors.

No matter how good the dyer is he cannot do the best work without the best machinery and under the best conditions, and if the mill management desire the best results at the lowest cost, they should place their dyer in a position to get them and then insist on their being produced.

SETTING UP AND CARE OF SPRING NEEDLE CIRCULAR MACHINES.

BY F. W. HERINGTON.

(Continued from October.)

We are now ready for the setting up of the wheels and burrs which constitute a single feed of the machine for the plain stitch.

The first stand to set up and adjust is the sinker or feed burr stand, Fig. 60, A, and Fig. 61, A.

The tube, Fig. 61, C, should be in line with the centre of the needle cylinder.

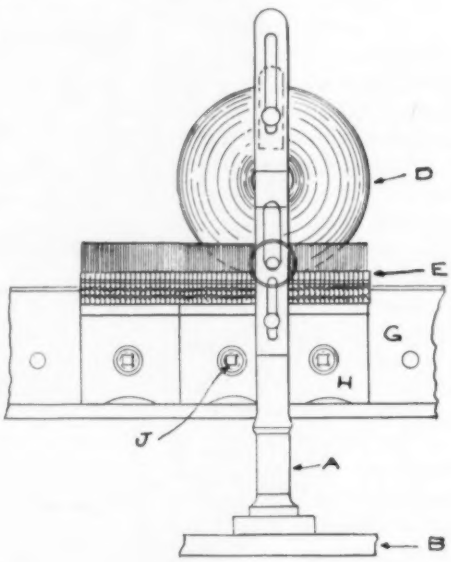


FIG. 60

Attached to this sinker burr stand is the revolving cloth wheel, Figs. 60 and 61, D.

The sinker stand, A, must be adjusted first, so as to bring the revolving cloth wheel, Figs. 60 and 61, D, in proper relation to the needles, E, in the needle cylinder, G, Fig. 60.

This cloth wheel, D, is set low enough, Fig. 61, F, to carry the knitted cloth down to the bottom of the leaded needle, Fig. 61, E. It is therefore set about 1/16 to 1/8 of an inch below the top part of the lead of the needle, E, and far enough away from the leaded part of the needle to allow the cloth to pass between the space.

The stand is also set with the sides of the revolving cloth wheel, so it will be at the same distance from the needles on each side,

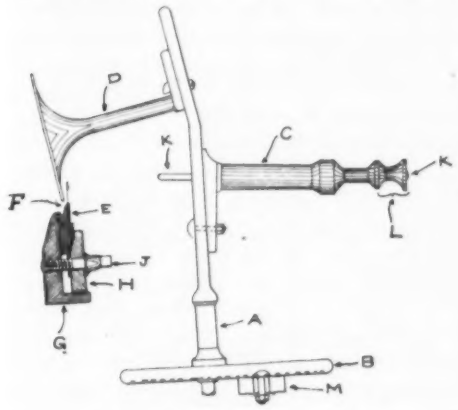


Fig 61

thus bringing the tube, C, on a radius with the cylinder.

Fig. 60 is a front view of a sinker burr

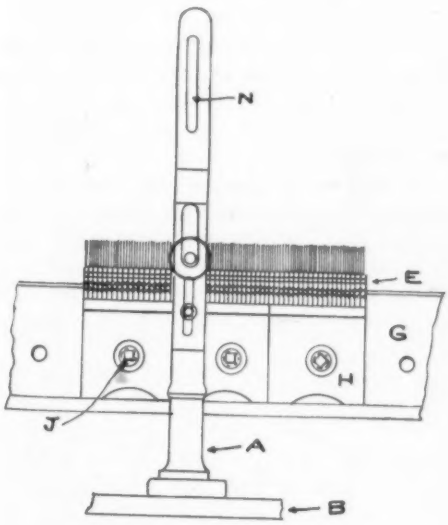


Fig. 62

stand, A, with the revolving cloth wheel, D, attached to it. G, is a broken section of a needle cylinder; E, the leaded needles; H, the needle plates; and J, the needle plate screws, screwing into the needle cylinder, and thus securely holding the leaded needles in position in the cylinders.

Fig. 61 is a side view of Fig. 60. A is the sinker stand; D, the revolving cloth wheel; C, the tube which contains the spring for rod, K; B, the slotted link to which the sinker stand, A, is fastened; E, the leaded needle; F, the edge of the revolving cloth wheel D; G, the cross section of the needle cylinder; H, a cross section of the needle plate; J, a full view of the needle plate screw, showing how the needle plates, H, are fastened to the needle cylinder, G, and the manner in which the leaded needles are securely held in the needle cylinder; K is the rod to which is attached the arm and stud for the sinker burr; L, the two nuts, which allow of the adjustment of the rod, K, in or out; M is a cross section of the outside circle to which is fastened the slotted link B.

After the setting of the revolving cloth wheel, the next thing to be set is the sinker or feed burr.

Fig. 62 is a front view of a sinker or feed

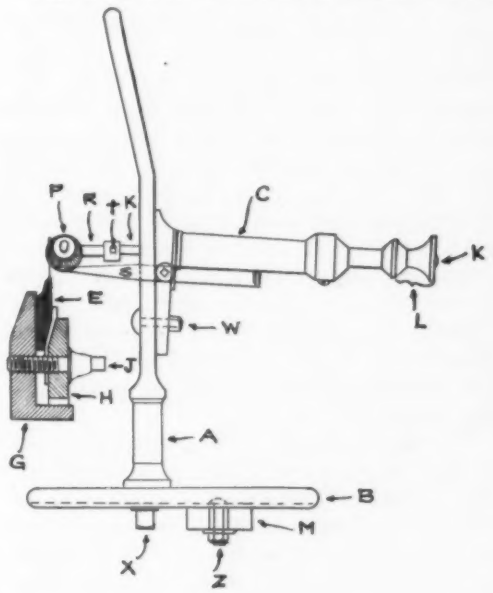


Fig. 63.

burr stand, A, with a sectional view of part of a needle cylinder, G, with 3 sectional needle plates, H, and the leaded needles, E, and showing the slot to which is attached the revolving cloth wheel, D, as shown in Figs. 60 and 61.

Fig. 63 is a side view of Fig. 62, with a

cross section of the needle cylinder, G, a cross section of the needle plates, H, and a full view of needle plate screws, J, showing a front view of the sinker or feed burr, P, with its arm and stud, R, on which the sinker burr revolves; the yarn guide, S, through which the yarn is fed to the sinker or feed burr and by it, to the needles.

The sinker burr should be set at such an angle by set screw, T, as to bring the incoming blade as it enters the needles parallel with the needles; also at such a height that the nib of the sinker burr when coming out of the needles, is above the tops of the needles, so as to ensure the carrying of the thread to the top of the needle. As to depth in the needles, about 1/2 way between the outer edge of its wings or blades, and the inner or brass hub to which the wings are attached and held to. This depth is of course changed afterwards, either in toward the needles, or outward from them, to adjust the length of stitch required.

Sinking the burr deeper into the needles by means of the rod, K, with its adjusting screws, L, by turning them towards the left, lengthens the stitch. Turning them towards the right shortens the stitch, by drawing the sinker burr out from the needles. The sinker burr arm and stud, R, are fastened to the rod, K; the adjustment in or out of the sinker burr, P, is thus controlled by the screws, L. The sinker burr must also be set as to its height so that the point of the nib of the blade, when entering the needles, is below the point of the beard of the needle, in order that the sinker burr may carry the thread up, and under, and into the needles.

The yarn guide, S, of the sinker burr is set so that the thread will be fed to it, above the nib of the sinker blade, and about 1/16 to 1/8 of an inch away from the needles. Where it comes close to the sinker burr, it should be bent to conform to the circle of the burr. The hole of the yarn guide must not be set too high above the nib of the blade, as it might be at a point higher than the point of the beard of the needle, and the yarn would therefore not enter the needle, but pass outside of it, causing "drop" stitches in the cloth. Neither must it be set too low, or it will be liable to drop off the nib of the sinker blade, with the result that the yarn would drop away from the burr, and the cloth would then be pressed off the needles, because there would then be no yarn in the needles to form new loops, when the previously formed ones are pressed and cast off.

The sinker burr tube, C, to which is attached the rod, K, and the sinker burr arm and stud, R, and the sinker burr, is adjustable up or down by having the stand, A, slotted above the bolt and nut, W,—Fig. 63. The loosening of this bolt and nut, W, permits of the up and down adjustment.

The sinker burr stand is also made adjustable in or out towards the cylinder, by means of the slotted link, B, to which the stand is fastened by the screw bolt, X, the slotted link being also made adjustable sideways or to and from the cylinder by means of a slotted circle, M, to which the slotted link, B, is attached by bolt and nut, Z.

PROCESS OF MERCERIZING KNIT GOODS IN THE ROLL.

A method of mercerizing knit goods in the roll has recently been brought out by Heinrich Gorden, Barmen, Germany. The apparatus, Fig. 1, consists of a tank divided into three compartments, 1, 2, 3. The goods enter the first compartment over carrier roll, 4, and are guided through the liquor by other carriers, 5, 5. The first compartment is filled with boiling water heated by the steam coil, 6. The second compartment contains cold water, and the third is filled with the alkaline solution.

The goods are first treated in the hot water to make them more capable of absorbing the alkali, then cooled in the second compartment and finally soaked in the alkaline liquor. In passing from one compartment to another the goods are squeezed through the rolls, 7, 8, 9, respectively so as to remove the surplus liquor, which runs back into the compartment from which the goods are coming. Immediately after passing through the last pair of squeeze rolls, 9, the goods are drawn over the expansion frame shown in Fig. 1. An enlarged plan of one end of this frame is shown at Fig. 2. It consists of two C-shaped

side arms, 10, which can be adjusted to suit different sizes of goods by the rods, 11.

The ends of the side arms next the tub are bent inward so as to enable the goods to pass over the frame without difficulty and be stretched to the required width. To reduce friction between the goods and the arms the latter are provided with balls, 12. At the end of the frame opposite the tub is placed a roller, 13, the width of which corresponds with the width of the goods. This roll comes in contact with the squeeze rolls, 14. The tension lengthways is maintained on the goods by the squeeze rolls, 7, 8, 9, 14. This tension can be changed by the adjustment of the pressure rolls. The tension widthways is obtained by the expansion frame, 10. During the passage of the goods over this frame the goods are rinsed by a spray from the pipes, 17.

Oesterreichs Wollen-und Leinen-Industrie, from which this description is taken, states that all previous attempts to mercerize knit goods in the roll have given unsatisfactory results owing to the goods not being kept under tension, and expresses the opinion that the apparatus just described promises to overcome this difficulty.

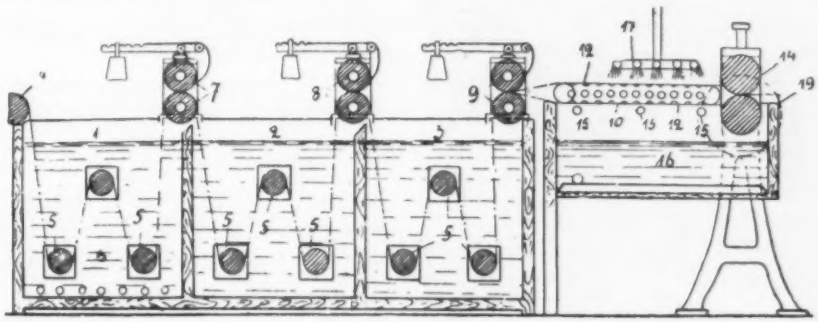


Fig. 1.

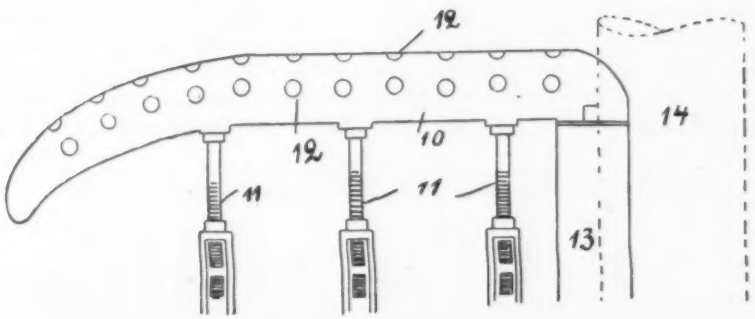


Fig. 2.

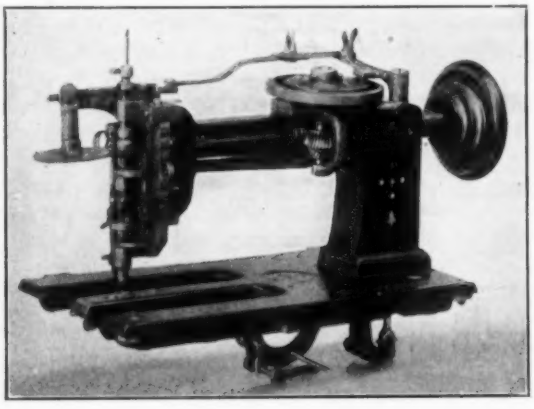
A MERCERIZING MACHINE FOR KNIT GOODS.

A NEW EMBROIDERY MACHINE FOR HOSIERY.

The accompanying illustration shows a hosiery embroidery machine equipped with a new device recently brought out by John Fink, 201 Centre St., New York, for producing designs on hosiery. It is claimed that with this device effects can be obtained that have hitherto been impracticable.

The general construction is simple and based upon an interchangeable cam machine connected with a changeable slide bar. The cam can be replaced very quickly and the feeds adjusted by means of an adjustable connecting rod. It is said that an inexperienced

operator can run this machine without difficulty as the operation consists simply in guiding the work as it enters the machine. Designs of different sizes can be made with



AN EMBROIDERY MACHINE FOR HOSIERY.

the same cam by means of different gears or by shifting the slide bar. The builder keeps a large assortment of cams constantly on hand with which it is possible to obtain a practically unlimited number of patterns. Each pattern is automatically finished by a self release.

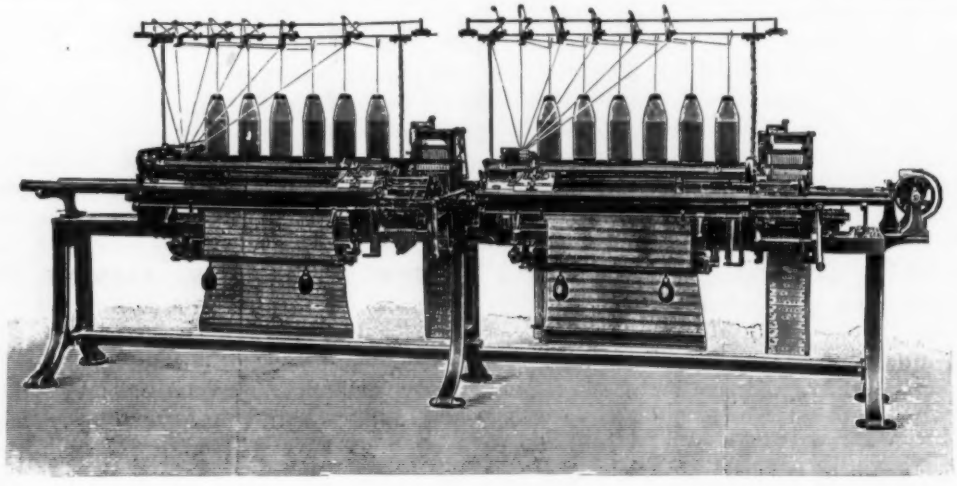
A great advantage of this device is that manufacturers can have special cams made to produce original designs which competitors cannot reproduce. Mr. Fink is so confident of the superiority of his machine that he is ready to place it on trial. A very high degree of durability results from the fact that all the wearing parts are forged of the best Bessemer steel.

Further information regarding this device and samples of the work can be had upon application to the builder.

A JACQUARD POWER KNITTING MACHINE.

The popularity of fancy patterns in knit goods makes the Jacquard knitting machine shown in the accompanying illustration of especial interest to knitters. It is built by the well-known firm of Seyfert & Donner, Chemnitz, Germany. Their agent in this country is Julius Muller, 132 Melrose St., Brooklyn, N. Y.

This machine works on the same principle as the Jacquard loom, and consequently can produce an unlimited variety of patterns at the will of the designer. The pattern cards consist of pasteboard and are perforated in accordance with the pattern desired. The machine can be quickly changed at very slight expense from one pattern to another. It is built with either one or two heads as desired.



A JACQUARD POWER KNITTING MACHINE.

Knitters of fancy goods should investigate the merits of this machine and can obtain full information regarding it upon application to the American agent, who will also give any one opportunity to inspect the goods produced and the machine in operation.

Sizes of Men's Sweaters.

Editor Textile World Record:

We would like to know the proper dimensions for men's sweaters for each size number.

St. Paul (386).

This question was referred to one of the largest dealers in sweaters in the country. The reply made after careful inquiry among dealers and manufacturers is given below:

We find that there is considerable variation among manufacturers in respect to the sizes of men's sweaters, but the following table gives a fair average of the present day practice:

Dimensions for Men's Sweaters.

Sizes	Length	Width
34	26	13
36	27	14
38	28	15
40	29	16
42	30	17
44	31	18
Boys'.		
26	21	11
28	22	11½
30	23	12
32	24	12½
34	25	13

Knitting Factory for Sale.

Attention is called to the announcement on another page of a factory for sale near Philadelphia. It is at present occupied as a knitting mill, but will be sold either with or without machinery. It is equipped for the manufacture of women's and children's cotton ribbed hosiery and underwear. It has plenty of room for expansion, and the building is strong enough for heavier work. The owner desires to retire from business, and would leave part interest as stock with the right parties.

Special Oil for Knit Goods.

The Wilmington Oil Co. at Wilmington, Del., make a special white soluble oil as a softener for knit goods and hosiery. Where this oil is used the goods are left soft, and with a good feel. It takes away any harsh, brashy feeling. A good many knit goods manufacturers are using it. The manufacturers will be pleased to furnish samples and prices upon application.

An Unusual Record.

In this comparatively new country of ours, it is not often that one hears of a concern in which the third generation in direct succession is carrying on the business originally established in the same place. Such, however, is the record of what is now the Tompkins Brothers Company, succeeding the former firm of Tompkins Brothers, and consisting of the original Tompkins Brothers and one son of each of them; viz., Ira A. Tompkins and Ernest Tompkins. This is the third generation in direct succession to carry on the knitting machine business in the Troy shop. The new members of the company have been actively connected with the concern, and are well fitted for their new responsibilities. The name of Tompkins is known in connection with knitting machinery wherever there is a knitting mill, and it is needless to say that the concern's reputation for advance ideas and work well done will be maintained, and we understand the facilities will be increased.

Business Rushing with the Hemphill.

The so-called "quietness" in the knit goods trade is apparently not being felt by the Hemphill Machine Co., of Pawtucket, R. I., manufacturers of the Hemphill full automatic hosiery knitter. Orders are reported coming in for these machines much faster than they can be filled, the size of very recent orders booked being from ten to fifty machines each, some of them coming from the largest and oldest manufacturers in the country. The continued high prices of yarn and the increased running expenses in the knitting mills makes it very necessary that they make up the difference in some other way, and it is claimed that in some cases the mills running the Hemphill machine have been agreeably surprised to find that the bills for running expenses have been reduced from 50 to 75 per cent.

This machine has only been advertised to the open market for three months, although it has been run by some of the large eastern mills for four or five years. Representatives from mills in other sections of the country who have called to see the machine have expressed surprise that such a machine has been in existence so long without their knowledge of it, and regret that they have not had an earlier opportunity to place their orders. The machine is so simple and solid in its construction that it commends itself at once to practical knitters. The Philadelphia representative is Edwin A. Newton, 245 Race St., who has the machine on exhibition, and it is well worth a visit to see him demonstrate the merits of the machine. After hearing him explain the various workings of the machine, one feels almost able to take charge of a roomful of them, even though the observer may never have seen the machine before. The striking feature is that it performs positively so many operations with so few parts and such simple mechanism.

A New Knitting Mill.

We have received word from the Harriman Knitting Mills, Harriman, Tenn., to the effect that they are now in full operation and running on a line of ladies' light weight ribbed vests, although they are able by their equipment of machinery to make any grade that may be desired. They are putting out a fine line of samples and invite correspondence from a commission firm desiring an account of that nature.

Recent Knitting Patents.

KNITTING MACHINE. 745,449. George D. Mayo, Franklin, N. H., assignor to the Mayo Knitting Machine and Needle Co., Franklin, N. H.

KNITTING MACHINE. 742,941. William C. Whitcomb, Chicago, Ill., assignor to George D. Whitcomb Co.

This invention relates to take-up rolls employed with knitting-machines, and has particular reference to such as are provided with yielding radial projections or studs enabling them to firmly grasp the fabric issuing from the knitting mechanism to insure the proper tension thereon.

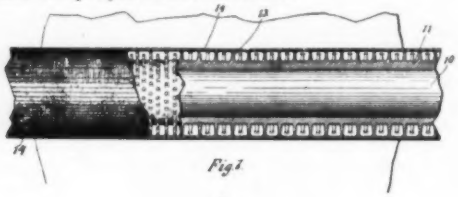


Fig 1

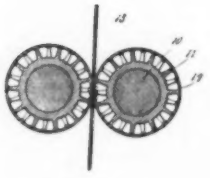


Fig 2.

In practice it has been found that while rolls of the above type properly perform their function in taking up cotton and like fabrics they are not entirely satisfactory in dealing with woolen and similar rough materials, owing to the tendency of the villous or hairy substance on the surface of the cloth to become entangled in the projections, causing the material to adhere to the rolls and to be wound about the same, thereby interfering with the operation of the machine.

The invention has for its object to obviate this fault; and to this end it consists in providing each roll with a sleeve or shield of some suitable material, as the fabric produced by the machine, whereby direct contact of the fabric being knitted with the projections is avoided.

Pennsylvania, Louisville. It is reported that several parties have purchased the old Spring Lawn Paper Mills and will erect building to be equipped as carpet mill.

KNITTING MILL NEWS.

*New Hampshire, Lakeport. Bids are being received by H. H. Wood & Co. for the erection of new mill, 117 by 54 feet, three stories and basement, brick, to replace plant which was destroyed by fire.

Pennsylvania, Philadelphia. The Reliable Mfg. Co. is a new concern located at 333 Wood street, manufacturing incandescent gas mantles. One Branson machine is in operation. They use number 40 and 36 thread on cones. Goods are sold direct. Harry Polasky is superintendent and buyer.

Pennsylvania, Philadelphia. C. O. Barth & Co. have recently taken up quarters in the building at the N. E. corner of 2nd & Diamond streets in which they are operating 15 machines on ladies,' men's and children's sweaters, jackets and fancy knit goods of wool and worsted. The company also runs four sewing machines; employs 22 hands and sells the goods direct.

*Pennsylvania, Philadelphia. Mr. Charles C. Barger, recently reported as starting a knitting business at 2420 Waterloo street, at this time has the plant well under way towards completion. A dryer has been erected and installed and the shafting is being put up. He will commence business with 7 machines, to which he will add 9 more, and manufacture infants' high grade hosiery, for which he has already received many orders.

Pennsylvania, South Bethlehem. Yost & Mackay started operations Dec. 1st to manufacture hosiery at 101 West 4th street. They will make men's cotton half hose.

South Carolina, Columbia. The Keenan Knitting Mills are reported as organized with capital stock of $60,000 for manufacturing high class knitting yarns for the hosiery trade. W. J. Keenan and John L. Wimnaugh are interested.

Vermont, No. Hartland. Four narrow and four broad looms have recently been installed in the Ottaquechee Woolen Co.'s mill.

Enlargements and Improvements.

Pennsylvania, Lyons Station. The Lyons Knitting Mill, of which George W. Malick is the proprietor, manufacturing plain and ribbed infants' stockings and half hose, are operating machines in their office to enable them to get out their orders. Mr. Malick before starting in this business was employed by Madeira & Wanner when they were located in this town, taking over their plant when they removed to Fleetwood, which he claims has been a most profitable investment. He is now considering the matter of erecting an addition to his factory in the early spring. He is now operating 32 knitters and 7 ribbers, producing 165 dozen per day and selling the goods direct.

Pennsylvania, Norristown. Daniel Shannon's mill on Penn street has been shut down for three months, during which time the machinery has been put in good condition and 20 new Mayo's added, preparatory to starting up on the 14th inst. on full time. Women's and misses' cotton hosiery are made and sold direct.

Pennsylvania, Norristown. The DeKalb Knitting Mills, successors of the Franklin Knitting Co., state that business is looking up. The plant is

run on misses' ribs and half hose on 50 knitters, to which 6 new machines have been added. Mr. Gunn, the present proprietor of these mills, was for many years engaged in the knitting business in Philadelphia at the corner of Mascher street and Lehigh Avenue, where he met with great success.

Pennsylvania, Norristown. The Home Knitting Mills, Buttonwood and Lafayette streets, run by Preissler & Watt, are doing a good business manufacturing cotton and lisle half hose on 15 machines and selling the goods through New York. This company is also using two loopers, to which they are about to add another.

Pennsylvania, Philadelphia. The Chemitz Manufacturing Company which started operations in the building at the Southeast corner of American & Somerset Sts., have removed their establishment to larger quarters on Orkney St., above Lawrence and Girard Avenue. The company manufactures cotton, woolen and worsted seamless fashioned hosiery for men, women and misses, and reports business good.

Pennsylvania, Philadelphia. The Economy Hosiery Mills have removed from their old location at Hancock and Oxford streets, to larger quarters at 1845 and 47 Hazzard Street, where they have rented the building formerly occupied by the Keystone Fast Black Dye Works, which has recently been remodelled and improved. Mr. Rowbottom, the proprietor, states that he is very busy for this time of the year and has recently added several new Victor machines which are now in operation. The goods manufactured is plain hosiery which are sold direct and through agents.

Mills Starting Up.

Vermont, Bennington. Operations have been started up in some of the departments of H. E. Bradford's mill. It is hoped to have the plant operated in full by the first of the year.

Virginia, Farmville. John Walton, Jr. and W. B. Cooke, previously reported interested in establishing a mill at Wilson, have abandoned the idea and have purchased the Farmville Hosiery Co.'s mill, which has been idle for about a year. The plant has been started up with 44 knitting machines and one sewing machine, making 176 needle half hose, ladies' 176 needle goods and infants' hosiery. John Walton is superintendent and general manager of the plant and W. B. Cooke, buyer.

Facts and Gossip.

*New York, Poughkeepsie. A petition in bankruptcy has been filed by the Fallkill Knitting Company. The liabilities are estimated at $38,219, of which $20,914 are secured, and nominal assets of $19,888.

New York, Syracuse. The Regal Textile Co., of Utica, N. Y., is reported as having purchased the Clinton Knitting Co.'s mill and will remove to this place. Reason for moving is that they are unable to secure sufficient help.

*New York, Utica. The machinery, office fixtures and manufactured stock of the Otter Knitting Company has been disposed of at recent sale held by the receiver of the plant.

North Carolina, Spray. It is reported that a plant for manufacturing knit goods is to be installed in the Spray Mercantile Building.

Pennsylvania, Allentown. J. J. Taylor & Co. have purchased the Clinton Knitting Co.'s plant and are operating the same on ribbed underwear.

Pennsylvania, Bridgeport. The Kaufman Manufacturing Company, which started here about eight months ago, is attaining quite a reputation for their misses and children's seamless ribbed cotton hose which they are selling direct from the mill. Orders are coming in very steadily and they are now working full time operating 144 knitters and employing 200 hands, with Harry M. Gale as superintendent of the plant. The goods are bleached, dyed and finished in this establishment.

Pennsylvania, Collegeville. Todd & Spooner's Perkiomen Knitting Mills have been very busy and even now have enough orders to keep them running full time until March of next year on their seamless cotton and lisle hosiery. This company has been in business but two years and claim that the success with which they have met is due to the fact that they are their own superintendents and no goods leave the mill unless they are in first class condition. Their spring goods are now on the market and they are receiving much praise from the trade on account of their high quality and finish.

Pennsylvania, Fleetwood. Mr. D. F. Kelchner reports that he is busy running his mill full time on cotton half hose with 42 knitters and 8 ribbers. Mr. F. R. Ritter is the superintendent. Goods are sold through New York.

Pennsylvania, Kemblesville. It is reported that contracts have been awarded for erection of a building 200 by 35 feet, to be equipped for knitting. It is proposed having the plant ready to start operations by February 1st.

Pennsylvania, Kreamer. It is reported that a knitting mill is projected at this place, provided about 60 people can be employed.

Pennsylvania, Macungie. The Valley Knitting Mill of R. F. Moyer & Company is very busy with orders coming in steadily. Mr. Moyer, however, says that he fears if the yarn market is not more favorable to the manufacturer it will be necessary for them to shut down for a week or two, at least, at which time they will take advantage of their stoppage by overhauling their machinery preparatory to starting up again. This mill manufactures cotton hosiery and women's underwear.

Personals.

M. J. Shaughnessy has resigned as superintendent of the W. H. Rowe Knitting Company, Amsterdam, N. Y., and will hereafter devote his time to an open mesh garment that he has invented and upon which he has applied for a patent.

Lewis Eddy has entered the employ of the Knitted Fabric Company, Methuen, Mass., as secondhand in the dye house.

John McHale has accepted a position as boss rib knitter for the Hines Underwear Co., Waterford, N. Y.

E. Austin is the new overseer of knitting at the Wright's Health Underwear Co., Pownal, Vt. He comes from Troy, N. Y.

New Machinery and Processes.

This department is designed to present from month to month a brief mention of new machinery, devices, and processes being brought out in this country and abroad, that are of interest to textile manufacturers. It is not a list of patents, but of improvements coming on the market. The idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.
We invite machine builders and others to send us such information for this department.

Bleaching Process. Manuel Muntadas y Rovira, Barcelona, Spain, has perfected a process of bleaching in the open width for which many important advantages are claimed as compared with the present methods. It is said to combine the advantages of both the closed kier and the open width systems. The circulation of the liquor is in a contrary direction to that of the movement of the cloth, and thus the cleansed cloth is continually coming in contact with pure liquor. This system of circulation is used for both the bleaching and rinsing baths.

Other advantages are: 1. The cloth is not brought at once to a high temperature, but is gradually heated; 2. By the system of circulation adopted the polluted liquor is used to the best advantage; 3. Better results will be obtained with a much weaker liquor than is possible at present; 4. The formation of oxy-cellulose is prevented by the intermittent application of steam and alkali. M. Rovira is now in this country, his address being 27 William St., New York City.

Tenter Hook Willey. Oscar Schimmel & Co., Chemnitz, Germany, have recently placed on the market a small-size fearnaught or tenter-hook willey. This machine is 24 inches high and has been received with much favor by German manufacturers on account of the advantage it offers of handling small lots of wool, for which the ordinary sized machine is too large.

Polishing Machine for Silk and Half Silk Cloths. The Maschinenfabrik Rueti, Rueti, Switzerland, is placing on the market an improved polishing machine adapted for silk and half-silk goods, such as glorias, surahs, sateens, etc. It is said that one machine will give a production of 1,400 yards per day and that the finish is much superior to that obtained by the machines now in use.

Weaver's Shuttle. M. Brooks, Whally, Lancashire, England, has recently brought out a new shuttle. Suitable arrangement is provided in the side of the shuttle to enable it to be threaded by the finger and thumb. A hook is placed near the point for the purpose of guiding the filling thread through the side of the shuttle. It is claimed that snarls and side play are practically avoided, that the selvage is greatly improved and that there is less strain on the filling than with the ordinary shuttle. It is also claimed that the muzzling of the shuttles with flannel is not necessary. We understand that these shuttles are now in use in a number of Lancashire mills.

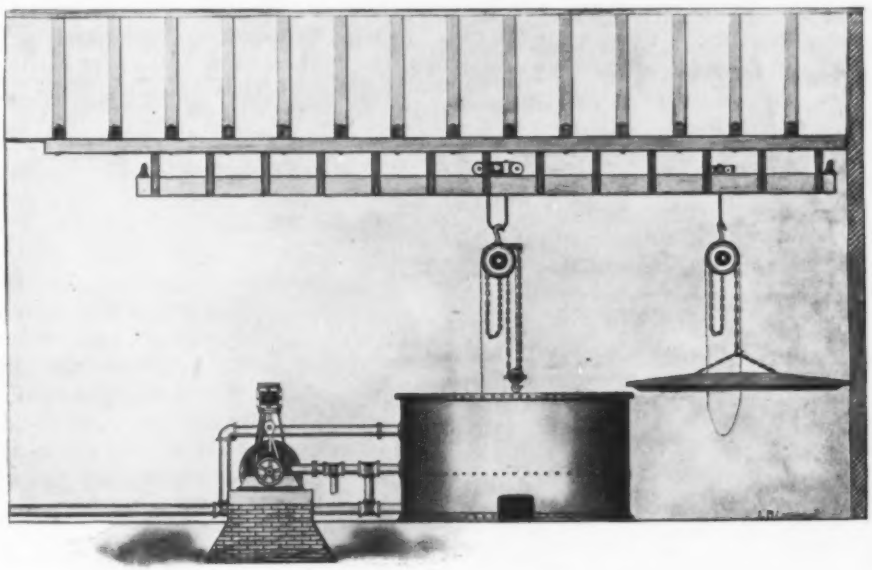
Loom Shuttle. John Taylor, Roach Shuttle Works, Rochdale, England, has recently placed on the market a self-threading shuttle which is said to have given very good results. The shuttle can be threaded very quickly and no suction of the breath is required. The drag on the filling is very uniform, the selvages in consequence being almost perfect.

Circular Knitting Machine. George Blackburn & Sons, Nottingham, England, have recently placed on the market an improved circular knitting machine. It is of the latch needle type made in sizes from 13 to 30 inches. The cam cylinder is built up in sections and by unfastening one screw any one of these sections can be uncovered. For coarse counts the cylinders are made solid and for the finer gauges they are built with fine steel partitions which makes it possible to build for the finest work made.

Automatic Loom. Grossenhainer Webstuhl und Maschinen Fabrik, Grossenhain, Germany, have recently placed on the market an automatic shuttle changing device which can be used on the old as well as on the new types of their looms.

THE VACUUM DYEING MACHINE.

The accompanying illustration shows a new dyeing machine for raw stock, yarn and hosiery, built by the Vacuum Dyeing Machine Co., Chattanooga, Tenn. It has been in use for some time in a number of mills throughout the country with very satisfactory results. We recently saw this machine in operation. It was loaded with 1200 pounds of raw cotton which was being colored at the time, and at the side of the machine lay another batch of 1200 pounds that had just been dyed. The color was uniform and apparently the fibres had not been disturbed by the dyeing operation, but were in the same relative position as when taken from the bale. The manager of the mill said that the machine had originally been delivered on trial, to be removed if not satisfactory, and that as soon as he had seen the first batch dyed in it he told the man who had set it up to go home and send in his bill for the machine, and that it would be paid without question, as he had seen enough to satisfy himself it was all right. The manager added that it had been running to his satisfaction since then, and pointed to the dyed stock which spoke for itself.



THE VACUUM DYEING MACHINE.

The machine consists of two cylinders—the inside cylinder is riveted to the bottom of the outer cylinder and there is no other connection between these cylinders except at the top, the outer cylinder being four inches higher than the inner cylinder.

The stock to be dyed is packed in the inner cylinder, which has a false bottom or perforated plate which the cotton rests on. When this cylinder is filled, a perforated plate is placed on top of the cotton and held substantially in position by a spider. The stock is compressed by this plate and packed in a solid mass.

The dye liquor is then turned into the machine until the amount required is in, the pump is started which takes the dye liquor from the outer cylinder passing through the pump and discharging into the bottom of the inner cylinder. The dye liquor then passes through the cotton and flows from the top of the inner cylinder and back to the pump, thus continuing the circulation until the batch is dyed.

The machine is so constructed, that by re-

versing the valves the dye liquor can be drawn from both inner and outer cylinders and pumped into the storage tank. By saving this dye liquor it does not require the large amount of steam to heat the dye liquor for the next batch, as it is boiling when it is turned into the machine.

The machine is fitted with an overhead track and two chain blocks for unloading. When ready to unload the small block is run into position, and connects with the top perforated plate by means of chains suitably arranged. This plate is lifted from the machine and run to one end of the track and left hanging as shown in the cut. The large block is then run into position, and is connected to the false bottom or perforated plate by means of suitable chains. The entire load of cotton rests on this plate and is lifted out of the machine by one operation. This load is run to the other end of the track and is dumped off. This plate is then replaced in the machine and it is ready for the next batch, which is treated in the same manner.

Among the advantages claimed for this machine are the following:

It successfully dyes sulphur colors as well as all others.

The stock is taken directly from the bales and does not require being opened before dyeing; it will dye compressed as well as country cotton.

Cotton dyed by this process will card and spin as well as white cotton, and with no more waste.

The stock is not matted or tangled in any way and it is impossible to injure the fibre.

Every fibre of the stock is dyed through and through.

It will save 50 per cent. in labor, 90 per cent. in steam, 10 per cent. to 20 per cent. in dye stuff, and requires less than one-third the amount of water heretofore required.

The stock is in the same condition as it is when it comes from the bale.

It will dye wool or cotton without matting or disturbing the fibre.

Further information in regard to the machine can be obtained upon application to the builders.

THE MULLER PATENT TRAVERSE WINDING FRAME.

The accompanying illustration shows the Muller patent traverse winding frame built by The Easton & Burnham Machine Co., Pawtucket, R. I. These well known machine builders have secured the American rights for building the Muller winder whose merits have been demonstrated in European mills. This machine is used for winding all kinds of yarn from mule cops, bobbins, double flanged bobbins or skeins, to thin paper or wooden tubes without flanges; the yarn can be wound in either parallel or conical shape. The tension can be adjusted as desired,—tight for beaming, warping or doubling, and loose for dyeing and bleaching.

The machine is strongly built with one rail on each side carrying the stands for the drums; each drum drives one tube or cone. These drums are 15 inches in diameter and special care is exercised in their construction. They are doubly split and each drum guides the thread to its respective cone, thus dispensing with a special traverse motion.

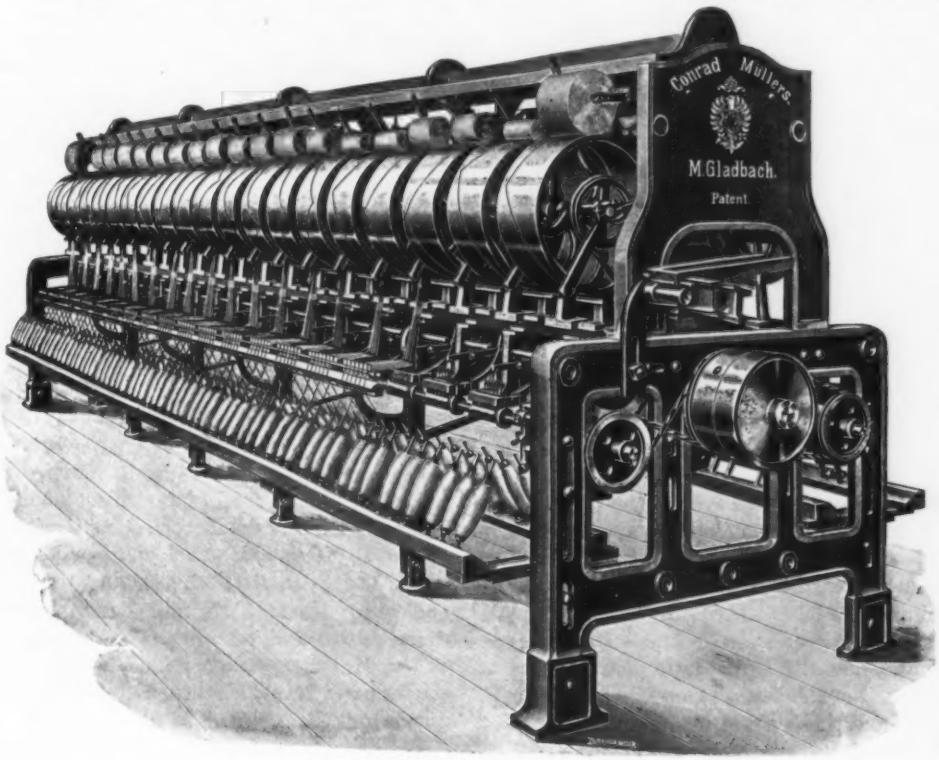
On the Muller machine each drum works separately and independently of its neighbor, and if one drum should get out of order (which, it is claimed, is a very rare occurrence and practically impossible owing to its strong construction), it does not affect the adjoining drums. The drums are driven by small grooved pulleys fixed on the main driving shaft in the centre of the machine. The creel is suitably arranged according to the requirements, with holders for cop skewers, etc.

The winder is equally well adapted for winding cotton, woolen, linen, jute yarns, etc., either singly or ply yarn, up to 6-ply. When arranged for ply yarn the machine is provided with a self acting stop motion for each end. The traverse drums can be made with 2- to 7-inch traverse, and tubes or cones can be wound to any thickness up to 10 inches in diameter. On account of the diameter of the drums being in proportion to the width of same and also on account of the angle of the slits in the drum being accurate, the thread is preserved from strain

and therefore the machine can be run at a very high speed.

The chief advantage of the Muller winder is in the patent movable thread guide. This guide adjusts itself. When starting winding, the thread guide is moved about 1/2 inch from the paper or wood tube on which the yarn is wound. Once set, the guide keeps always at the same distance from the bobbin, for, owing to the ingenious connection of the guide with the bobbin cradle, the former recedes from the bobbin in exactly the same proportion as the bobbin increases in diameter. Thus the guiding of the yarn is uniform during the whole course of winding, and the thread is wound with uniform tension from beginning to end ensuring a uniform tube or cone. It is claimed that bulging out of the tubes at the sides is impossible. The firmness of the tubes or cones on this machine can be regulated according to requirements, and even on the softest bobbins the winding is said to be perfect.

When winding ply yarns the winder is provided with an automatic stop motion which acts as soon as an end breaks, stopping the tube on which the end is broken. This stop motion, the invention of Mr. Muller, is said to be very effective; its construction is simple and allows the machine to be run at a very high speed. It is said to be so effective that even when working at the highest speed the broken end lies on the drum and is not wound upon the tube. The ends can thus be easily tied and waste of yarn and big knots are avoided.

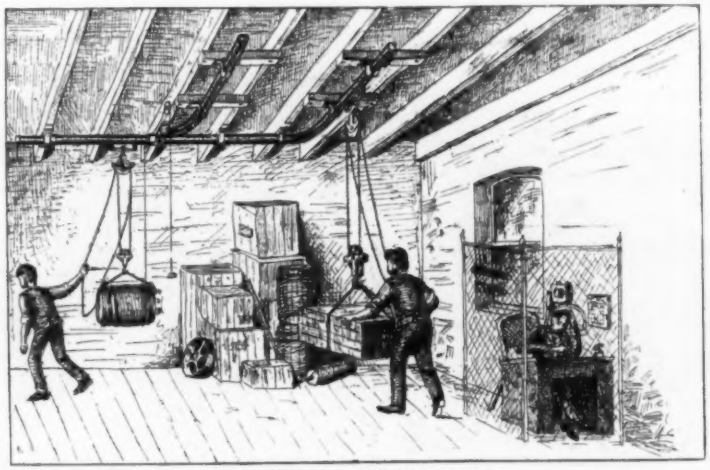


THE MULLER PATENT TRAVERSE WINDING FRAME.

The Muller cross winder is capable of a very large production and the builders invite comparisons. They state that single cotton yarn of medium strength can be wound from cops at a speed of 1,700 feet per minute. Further advantages claimed for this winder are, stable construction, few parts, noiseless working because there is no cam or crank, little power required, very little wear, no skilled hands and but little attention required.

OVERHEAD TRACKS.

The overhead track system of Putnam & Co., 150 Nassau St., New York City, is admirably suited for textile mills. It solves the problem of transporting material from one part of the works to another and enables this work to be done at much less cost than is possible with the aid of floor trucks. The Putnam overhead track is made of hollow steel and can be erected by the mill mechanic. It is only necessary to bolt brackets to the ceiling, slide the track into place and it is ready for use. The accompanying illustrations show this system in operation.



THE PUTNAM OVERHEAD TRACK.

The manufacturers invite correspondence and are confident that they can effect a large saving in the labor now required for carrying goods and material in process through the mill.

Mercerizing Knit Goods. Heinrich Gorden, Barmen, Germany, has recently brought out an apparatus for mercerizing knit goods in the roll. A description appears in another part of this issue.

Crochet Attachment for Looms. Schelling & Staubli, Horgen, Switzerland, have brought out another crochet attachment for looms, which they claim enables effects to be produced which have hitherto been possible only by hand work.

THE HARTFORD EXHAUST SYSTEM.

The illustration accompanying this article shows the Hartford Exhaust System as applied to forges for removing smoke, gases, etc. This system consists of a series of hoods, galvanized sheet steel piping, blast gates, etc. The pipe is connected to a Hartford patent improved adjustable steel plate exhaust fan, which creates a suction, drawing the smoke and gases through the pipe, and blows out through the roof, or other suitable place.

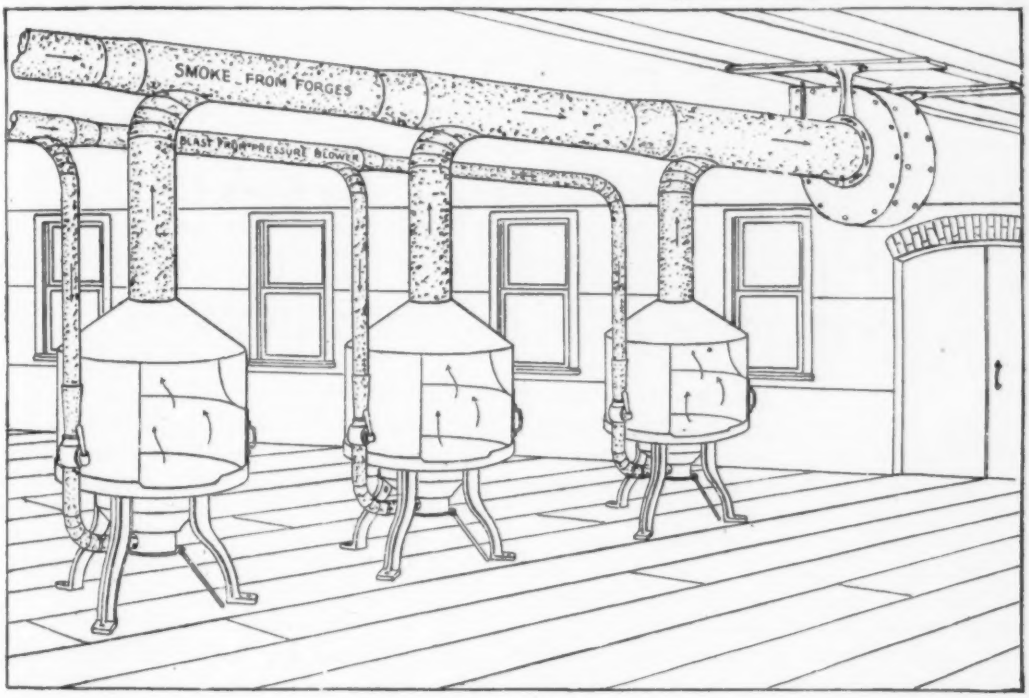
The Hartford exhaust fans possess novel, original and valuable features. The discharge outlet may be pointed in any direction, and changed from a right to a left hand or vice versa at any time. The fan may be placed on a floor, or reversed and bolted to overhead timbers.

Each fan combines over twenty ordinary, non-adjustable machines in one. The Changes and adjustments may be made at any time with a wrench. The feature of reversing this machine and bolting it direct to overhead timbers is shown in the accompanying illustration. This machine obviates the cost of building a platform upon which to place the machine. The Hartford blast system is also applied to forges for supplying sufficient air. The air at the necessary pressure is conducted through a main pipe of galvanized sheet steel, and connected with the forges with small branch pipes.

Each branch pipe connection is provided

with a Hartford blast gate which regulates the quantity of air to be supplied. The Hartford adjustable blowers are used for supplying the air in this system.

It is quite necessary that a system in order to be successful, must have the pipes and fittings properly proportioned. The Hartford Blower Company, of 114 Suffield Street, Hartford, Conn. ,make a specialty of furnishing these systems together with heating and ventilating systems, and an exhaust system for removing shavings, saw dust, lint, etc., as well as forced and induced mechanical draft. Drawings and estimates are furnished free, and a letter of inquiry to them will receive prompt attention.



THE HARTFORD EXHAUST SYSTEM.

A NEW OPEN WIDTH BLEACHING MACHINE.

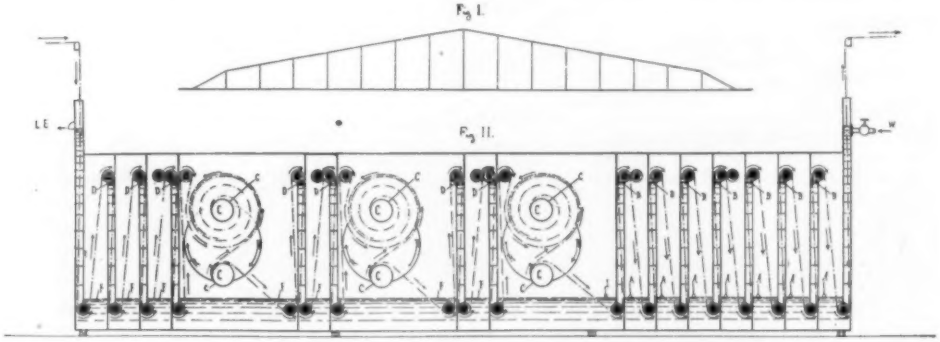
The accompanying illustration is a sectional view of a new open width bleaching machine designed by Manuel Muntadas, Barcelona, Spain, who is now on a visit to this country for the purpose of calling the attention of American manufacturers to this process.

Open width bleaching systems are divided into two classes: 1. Bleaching in the autoclave as illustrated by the Mather & Platt and the Jackson systems; 2. Bleaching by the continuous system, illustrated by the apparatus of Welter of Mulhouse, and the Rigamonti and Tagliani of Milan.

The advantage of the autoclave system consists in the high pressure obtainable, but special devices for running and storing the cloth are necessary. The continuous system offers the advantage of simplicity of construction and the ability to handle cloth of variable widths, but up to this time it has been impossible to get a pressure sufficiently high to give the results obtained by the first-named system. It is claimed that the Muntadas apparatus combines the advantages of both the autoclave and the continuous methods of bleaching. The operation of the machine and its advantages are described as follows:

Owing to the special position of the rollers, CC, carrying the cloth in rolls 4 feet in diam-

eter, the machine has a storage capacity of 4,000 pounds. The capacity of the machine is 1,300 pounds of cloth per hour and every part of the goods is subjected to the same bleaching process for three hours. In this machine the cloth moves continuously under a high pressure. The goods are subjected to the action of the lye, steam and the scouring liquor in a regular and progressive manner.



THE MUNTADAS OPEN WIDTH BLEACHING MACHINE.

The lye and water circulate in a direction opposite to that of the cloth. This results in bringing that portion of the goods in which the bleaching process has been farthest advanced in contact with the purest liquor.

The machine consists of a horizontal boiler divided into several different compartments with lapovers so constructed as to bring liquid seals between the adjoining compartments. The pressure in each of these intermediate or sealing compartments equalizes the pressure in the two adjoining chambers. The pressure of the central chamber is 25 pounds per square inch. In place of a tank capacity of 54 cubic feet as heretofore required, we have in this machine eight compartments of 6 or 7 cubic feet each.

The cloth enters at the left hand side of the machine, as shown in the illustration, and is delivered at the right hand side, the arrows indicating the direction of the movement. The first compartments contain caustic soda solution which is introduced into the central chamber, I, at its maximum strength. The liquor circulates from D to F toward the left and comes out exhausted at L E. In this way the cloth is subjected to the action of the liquor whose strength increases as the process advances. The steam pressure increases in the same manner. The rinsing water is introduced at W, and flows toward the central chamber, where the pressure is greatest. As the action of the alkaline liquor is progressive in the new machine it is claimed that there is a saving of 3 pounds of soda for every 100 pounds of cloth as compared with previous processes. The arrows, R, indicate the direction in which the rolls of cloth revolve in the interior of the machine. This rolling movement permits the cloth to move forward without interruption. It is stated that one of these machines will treat from 600 to 700 pieces per day of 10 hours, effecting a great economy in labor and chemicals.

Safety Locker for Revolving Flat Cards. John Hetherington & Sons, Manchester, England (S. C. Lowe, Boston, American agent), have recently placed on the market a device for insuring the closing of the front cover of the main cylinder while the card is in operation. With this device it is impossible to open the front cover while the machine is in motion and the card cannot be started until the cover has been closed. It was brought out with the idea of preventing the many accidents to workmen which have resulted from exposed card cylinders.

Faller Motion. Laederich & Co., Mulhause, Germany, have recently brought out a faller motion for self-actors the principal feature of which is a flat instead of a round wire for the fallers. It is claimed that this prevents the formation of kinks in the yarn.

Dyeing, Bleaching, Printing, Etc.

COLORS FAST TO MILLING ON SHODDY.

The manufacture of many classes of fabrics at the present time requires the use of shoddy in one or more of its several forms, and the manner of working up this material to the best advantage depends to a very great extent upon the skill and ability of the superintendent of the mill making such goods.

It is not our province to outline the manufacturing processes in general, but to confine our remarks to its dyeing operations, for it is conceded that the very best results can only be secured by thorough dyeing.

We will confine our remarks to the treatment of pure wool shoddy and mixed or union shoddy, as these two grades are the most important to the manufacturer. By far the best results are to be had by dyeing the stock in the raw state. For this purpose the ordinary open dyeing kettles are very convenient and low in cost to install, while the repairs are merely nominal. On the other hand the revolving dyeing machines, though apparently somewhat complicated, are much more economical not only in dyestuff and steam, but deliver better dyeings, so that any mill contemplating this work would find the mechanical dyeing process much more satisfactory in every way than the open kettle.

PREPARATORY TREATMENT OF SHODDY.

In the majority of cases shoddy is to be dyed shades heavier or darker than that which it already has when delivered to the mill, in which case no other treatment is necessary than to boil it up to remove oils, etc., and pass it on to the dyer. In many cases this boiling or scouring is omitted, and the dyeing immediately proceeded with. Frequently it happens that the shoddy is to be "stripped," or so reduced in shade as to permit it being dyed much lighter shades than would otherwise be possible, and for this purpose, stripping processes are used. In no instance can all the color be removed, but the results are quite satisfactory. The following will give an idea how to proceed.

STRIPPING BEFORE DYEING.

Boil the shoddy in a bath for 1/2 to 3/4 of an hour, containing about 5 per cent. of sulphuric acid, and if this does not give the desired result, make a trial with 3 per cent. bichromate of potash, and 5 per cent. sulphuric acid. These trials should be made upon a few ounces of the shoddy contained in a pail or other suitable vessel. If this chrome treatment fails to remove the color, or if the color of the stock is too yellow for subsequent dyeing, then make a trial with the hydrosulphite of soda, made as follows:

Take 10 gallons of sodium bisulphite, 65 deg. Tw., and dilute with an equal volume of water, and gradually add 10 lbs. zinc dust, with constant stirring. When all is added, allow to settle, and decant from 4 to 6 gallons of the clear liquor, which is added to 100 gallons of water, together with 1/2 gallon acetic acid. This gives the stripping bath, in which the shoddy is worked for 20 to 30 minutes at a temperature of 140 deg. F., after which it is removed, washed well, and made ready for dyeing.

Successive treatments with several processes are not to be recommended, as this tends to weaken the fibres.

DYEING PROCESSES.

For ordinary all wool shoddy that has not been stripped, and which is to be dyed with acid colors, for 100 pounds, prepare the dyebath with 3 per cent. of bisulphate of soda, raise the temperature to about 110 deg. F., enter the material and gradually bring to the boil, and boil for 1/2 hour, when a further addition of from 3 to 5 per cent. of bisulphate is added to ensure the complete exhaustion of the dye bath.

For the so-called acid alizarine (or anthracene acid colors) the dye bath is prepared with from 1 to 2 1/2 per cent. of acetic acid.

Enter the stock at 110 deg. F., raise the temperature to the boil, and boil for 1/2 hour, then exhaust the bath by adding about 4 per cent. of bisulphate of soda. The proper fixation of the color is done by adding to the exhausted bath from 1/4 to 1 1/2 per cent. of bichromate of potash, according to the shade, and boiling for a further period of 1/2 hour.

Wool shoddy is not generally dyed with the direct colors, but this process will be found of occasional service in matching certain shades and effects. The proper quantity of dyestuff is added to the bath, the stock entered, boiled, and gradually exhausted by the addition of from 2 to 3 per cent. of acetic acid.

For material that has been subjected to the stripping process with acids, etc., no acids need be added to the dye bath, the coloring of the stock being done quite regularly at the boil.

As in dyeing good wool, level results can only be assured by regular working and in the case of light and medium shades, by the gradual addition of the previously dissolved dyestuff.

For the usual run of union shoddies, the dyeing should be done in as small a quantity of water as possible—a good proportion being about 2 gallons for each pound of stock. A greater proportion, however, is sometimes necessary, depending upon the style and size of kettle, the only addition that is made to the bath being about 1 1/2 lbs. of crystal Glauber's salt to each 10 gallons of dye liquor. If the shoddy has been stripped with acid, it should be well washed before dyeing, and if necessary, rinsed in water containing a small quantity of ammonia. Brighter shades will always result from such treatment. The stock is entered at or near the boil, and is kept in motion for 1/2 hour without steam, and afterwards for another 1/2 hour at a gentle simmer, so as to bring up the wool to the same shade as the cotton.

Union shoddies may be aftertreated with either bichromate of potash, chrome alum, or fluoride of chrome, the average quantity being from 1/2 pound to 2 pounds according to the shade to be dyed. Sometimes this aftertreatment may be carried out in the presence of a small quantity of acetic acid, say 1 pint. Where standing kettles are maintained, the aftertreatment should always be done in a separate kettle.

FINAL TREATMENT.

By whatever process shoddy is dyed, it is necessary that it should always be well washed before it is sent to the driers, for if it is not, the drying will cause the fibres to become quite brittle, and the very best skill of the finishing department in the mill will not be able to remedy the defect in the woven piece. Lack of care in washing is responsible for nearly all the tender shoddy goods made.

THE PROBLEM OF SILK WEIGHTING

No article on silk weighting would be complete unless it made reference to the process of using tannic acid. This process was originally called "galling" from the fact that a strong infusion of nut galls was used for the purpose, but of late years, almost any kind of tannin containing substance has been used, depending upon the ultimate color to be dyed.

No hard and fast rule can be given for applying this process, because the weighting can be done before, during, or after dyeing—the choice resting with the dyer. As a rule, sumac extracts are used and kept at the proper strength by constant additions of fresh extract which, for the very best and brightest results, should be of the stainless varieties. The tannin weighting of silk depends entirely upon the absorptive power of the silk to take up the tannin from the solution, and which is then lightly washed and finally dried. This explains why the weighting may be done during dyeing. In this case, some free acetic acid is added to the dyebath along with the sumac extract to guard against possible precipitation.

Weighting with sugar was in use a good many years ago, and a few dyers of the old school used it as late as the 90's, but it is now only a matter of historical interest. We have not made reference in the preceding matter to iron weighting, which plays a part of interest only to bleach goods. The iron mordant necessary for the logwood black plays a double role—a weighting and

a mordanting agent, and the process is so familiar that it is needless to detail it here. It may be of interest to observe, however, that all black goods are not mordanted in the piece. Many are mordanted, weighted and dyed in the skein, and afterwards woven. It is quite possible to weight one set of threads with tin or lead, and dye with a direct black, and to mordant and weight the other set of threads with iron and cutch, and dye with logwood. But this is a mere detail of a complex manufacture.

Many chemical processes and methods have recently been published for detecting and estimating the amount of weighting a given sample of silk contains, but a very careful examination of them all, and practical trials upon silks of accurately known weighting, leads the writer to regard them all as of no practical value. The only true index of the amount of weighting on a given sample is obtained after carefully dissecting a portion of the goods, igniting a small portion to ascertain the character of the ash by chemical tests, and to form conclusions by comparing with similar tests made with silks of standard weightings. No dyer could formulate a weighting process from the results of a chemical analysis of the ash, and it is very doubtful if a chemist could aid, unless he had had a long experience in practical weighting. There are so many physical features of silk to be taken into account in making such determinations that no reliance could be placed on the results.

Silk weighting, to preserve all the good features of the fibre, is a matter of time; the best examples being always secured when the operation is carried out slowly, and as near the normal temperature as possible. Any attempt to hasten the process by whatever method, as a rule, impairs either the strength of the silk or its lustre.

Mercerizing Machine for Skein Yarn. C. G. Haubold, Chemnitz, Germany, has recently brought out a new machine for mercerizing yarn in the skein. The builders claim that it gives very uniform results and can be operated at a very slight cost of labor and alkali.

DYEING PIECE GOODS WITH SULPHUR COLORS.

The very best practice at the present time points to the use of an ordinary jigger for dyeing the fabrics, and to use a weight of liquor to cloth in the proportion of 5 to 1, or 5 quarts of liquor to each pound of cloth in the batch, and dyeing for 3/4 hour more or less.

The use of sodium sulphide depends materially upon the chemical structure of the color used. The following scheme will give a general view of the relative proportions of ingredients best adapted.

For light shades, a quantity of sulphide equal to its dyestuff used, while for medium shades from 1/3 to 1/5 will be sufficient. The other ingredients vary from 2 to 8 per cent. of soda ash and 5 to 50 per cent. of Glauber's salt.

The bath is boiled up with the soda ash, and any scum or sediment carefully removed, when the goods are given a run or two to wet them out thoroughly in the alkaline water. After this the dyestuff is added, together with the sodium sulphide, when two or more runs may be advantageously given before the salt is added. This procedure is the very safest to adopt as it removes any tendency to give streaks or other unevenness, inperfections that are impossible to remove, while the penetration is absolutely perfect. After dyeing, give a thorough washing, not a superficial rinse, for the value of the dyed results will depend as much on the washing as upon the dyeing.

For this purpose a mangle is strongly recommended, as it enables all the excess dye liquor to be removed with the least volume of water, while the final rinse is to be effected in a separate jigger. The use of small volumes of water, or machines that permit only one wash are not advisable. A point regarding the proper washing of sulphur blacks is to add to the first wash water about 2 1/2 per cent. of crystal sodium sulphide, which will prevent the formation of brownish or reddish tones on the finished fabrics. The greater brilliancy secured by this treatment fully compensates for the trivial cost of the sodium sulphide.

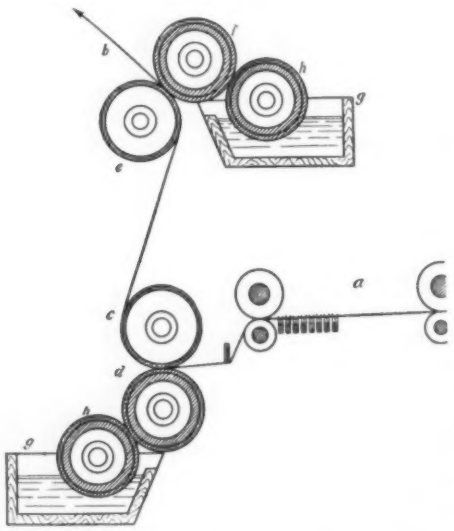
Objections have been made from time to time regarding the use of sodium sulphide in the dye bath, but all such ideas have been nullified by the light of recent researches, which demonstrate that sodium sulphide has absolutely no action on cotton, and any tendering of the fabric is due to other causes.

Some sulphur colors are greatly benefitted by being exposed to the air for a short time. For this purpose, it is found best to hang the fabrics from poles supported from overhead, and allow the goods to hang in folds for half an hour, then wash and finish.

If the goods are to be aftertreated, give them two runs through a bath heated to 120 deg. F., and containing from 3 to 5 per cent. of acetic acid, and from 1/2 to 1 per cent. of chrome, finishing at the boil.

NEW PROCESS OF VIGOUREUX PRINTING.

The accompanying diagram shows a cross section of a machine for vigoureux printing recently invented in Roubaix. The



worsted top is passed through the gill box, a, and then between the rolls, c, d. the tank, g, is filled with dye liquor in which the roll, h, runs, transferring the color to the color roll, d. The roll, c, is corrugated, the grooves running in an angular direction, the result being that the material is printed with slanting stripes or lines. The sliver then passes through the upper set of rolls e and f, which are the same as the lower set except that the corrugations run in the opposite direction. This machine is also built with one set of rolls, in which case the corrugations run in both directions on the same roll.—Wollen- und Leinen-Industrie.

New Color Cards.

Half-Wool Shoddies; Cassella Color Co., 182 Front St., New York City.

This card shows three shades dyed on cotton and shoddy mixed goods. The wool stock is first dyed in an acid bath and subsequently cotton-dyed with Diamine Black R M W.

Dyeings on wool and fur felt; Cassella Color Co., 182 Front St., New York City.

Sixteen shades dyed on wool and fur felt for which full directions are given.

Acid Anthracene Red; Farbenfabriken of Elberfeld Co., 40 Stone St., New York City.

One sample of slubbing and two of yarn dyed with Acid Anthracene Red.

Katigen Brown; Farbenfabriken of Elberfeld Co., 40 Stone St., New York City.

Four samples of cotton yarn dyed with Katigen Brown 2R.

Mercerol Wool Black and Yellow; Read, Holliday & Sons, 7 Platt St., New York City.

Two samples of woolen yarn and three of woolen cloth dyed with Mercerol Wool Black and Yellow.

Triazol Red; Geisenheimer & Co., 189 Front St., New York City.

Six shades of red on cotton yarn dyed with different percentages of Triazol Red 6 B and 10 B.

Era Blacks; Thomas Leyland & Co., 53 India St., Boston, Mass.

This card shows samples of woolen yarn, cloth and loose wool dyed black with Era Black M, B and J.

Garment Dyeing; Cassella Color Co., 182 Front St., New York City.

This is a very elaborate color card which could more properly be styled a treatise on garment dyeing. It is freely illustrated with samples of the dyed goods and includes wool, union goods, silk, cotton, linen, china grass, jute, cocoanut fibre, straw, chip, feathers, skins and rugs. It will prove a very useful handbook to all dyers engaged in any of these branches of dyeing.

Pluto Black, Farbenfabriken of Elberfeld Co., 40 Stone St., New York City.

This card shows black dyed with Pluto Black T G on sateen, mercerized serge and cotton yarn.

Rhoduline Blue; Farbenfabriken of Elberfeld Co., 40 Stone St., New York City.

Two samples dyed blue with Rhoduline Blue G G Extra, also one printed with the same dye.

Katigen Yellow and Brown; Farbenfabriken of Elberfeld Co., 40 Stone St., New York City.

This card shows three shades of yellow and three of brown on cotton yarn dyed with Katigen Yellow G and Katigen Yellow Brown R respectively.

Katigen Black; Farbenfabriken of Elberfeld Co., 40 Stone St., New York City.

This card shows a black on unmercerized and mercerized cotton yarn.

Chrome Colors on Shoddy; Cassella Color Co., 182 Front St., New York City.

This is a case divided into twenty-eight compartments filled with samples of shoddy dyed various shades with Anthracene Chrome Colors. The collection is very valuable for dyers on this class of work.

Benzo Azurine 3 R; Farbenfabriken of Elberfeld Co., 40 Stone St., New York City.

One sample of cotton yarn and one of raw cotton dyed dark navy shade with reddish tone with Benzo Azurine 3 R.

Domingo Alizarine Black; C. Bischoff & Co., 88 Park Place, New York City.

One sample of raw wool, two of worsted yarn and one of worsted piece goods dyed black with Domingo Alizarine Black B.

DYE RECIPES.

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 1.

Blue on Woolen Yarn.

Marinol Blue B on 100 lbs. of worsted yarn. Prepare the dye bath with

2 lbs. Marinol Blue.
4 lbs. Sulphuric Acid.
(Read, Holliday & Sons, Ltd., 7 Platt St., New York.)
10 lbs. Glauber's Salt.

Enter yarn at 140° F., give two turns, put on steam, bring slowly to a boil. Boil for one hour, lift, wash and dry.

Marinol Blue B may be applied to loose wool, slubbing, yarn or piece goods. It is fast to light, milling and rubbing, and possesses all the good properties of the mordant colors.

Recipe No. 2.

Black on Worsted Yarn.

Era Black J on 100 lbs. worsted yarn. Prepare the dye bath with

5 lbs. Era Black J.
(Thomas Leyland & Co., 53 India St., Boston.)
10 lbs. Glauber's Salt.
5 to 10 lbs. Acetic Acid.

Enter yarn at 120° F. and bring to the boil. After ¾ hour boiling, add

1 to 2 lbs. Sulphuric Acid

and boil ½ hour longer, or until the bath is exhausted.

Then aftertreat in the same bath with

1½ to 2 lbs. of Potassium Bichromate

for ½ hour at the boil. Wash well.

Era Black J produces excellent shades of black, possessing excellent fastness to light, milling, perspiration, acids, alkalies and steaming. It is especially suitable for dyeing loose wool, slubbing yarns, piece goods and felt hats.

Recipe No. 3.

Reddish Violet on Worsted Yarn.

Fast Acid Violet R G E on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Fast Acid Violet R G E.
(Herman Metz & Co., 122 Hudson St., New York.)
15 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 170° F. and dye at a boil for one hour, exhausting the dye bath if possible.

Fast Acid Violet R G E possesses high coloring power, dyes evenly and exhausts well. It withstands the oxidizing action of potassium bichromate very well, and possesses good fastness to light. It is therefore valuable in the shading of chrome colors.

Recipe No. 4.

Black on Worsted Yarn.

Azo Merino Black 6 B E on 100 lbs. worsted yarn. Prepare the dye bath with

5 lbs. Azo Merino Black 6 B E.
(Cassella Color Co., 182 Front St., New York.)
15 lbs. Glauber's Salt.
5 lbs. Sulphuric Acid.

Enter yarn at 180° F., bring to a boil and dye at a boiling temperature until the dye stuff is exhausted from the dye bath.

Azo Merino Black 6 B E dyes perfectly level, penetrates well and gives a bloomy shade resembling logwood. The shade does not seem to change in artificial light, and its fastness to the common color destroying agencies is very good.

Recipe No. 5.

Scarlet on Worsted Yarn.

Acid Anthracene Red G on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Acid Anthracene Red G.
(Farbenfabriken of Elberfeld Co., 40 Stone St., New York.)
3 lbs. Acetic Acid.
10 lbs. Glauber's Salt.

Enter at 170° F. and dye at a boil for one hour. An after treatment with 2 lbs. Potassium Bichromate renders the shade faster but darker and less brilliant.

Acid Anthracene Red G is especially suited for slubbing printing.

For any purpose where great fastness to light and milling is not necessary, it will be found to give an extremely brilliant and fiery shade of red.

Recipe No. 6.

Brown on Cotton Yarn.

Sulphur Brown 2 G on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Sulphur Brown 2 G.
(Berlin Aniline Works, 213-215 Water St., New York.)
15 lbs. Sodium Sulphide.
5 lbs. Soda Ash.
50 lbs. Glauber's Salt.

Dye at a temperature of from 180° to 200° F. for 1½ hours.

Sulphur Brown 2 G gives an excellent and fast shade of brown.

Recipe No. 7.

Yellow on Worsted Yarn.

Chrome Yellow 2 R on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Chrome Yellow 2 R.
(Sykes & Street, 85 Water St., New York.)
3 lbs. Acetic Acid.
1½ lbs. Potassium Bichromate.

Enter the previously well cleansed yarn without previous mordanting and dye at a boil until the bath is exhausted, which will take about one hour. After this continue the boiling twenty minutes to insure complete fixation of the color.

Chrome Yellow 2 R gives a bright and very fast shade of yellow. The great advantages of this dye stuff are the obtaining of fast shades without any previous mordanting or separate aftertreatment, and that direct addition may be made to the bath without cooling.

Recipe No. 8.

Blue on Cotton Yarn.

Paranol Blue S B on 100 lbs. cotton yarn. Prepare the dye bath with

2 lbs. Paranol Blue S B.
(E. M. Thayer & Co., 106-112 Broad St., Boston.)
20 lbs. Common Salt.

Enter yarn at a boil and continue the boiling for ¾ of an hour.

Paranol Blue S B gives a very bright blue for a direct cotton color, dyes evenly, stands light fairly well, and is very fast to washing.

Recipe No. 9.

Violet on Worsted Yarn.

Fast Acid Violet B E on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Fast Acid Violet B E.
(Herman Metz & Co., 122 Hudson St., New York.)
15 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 170° F. and dye at a boil for one hour, exhausting the dye bath if possible.

Fast Acid Violet B E possesses high coloring power, dyes evenly and exhausts well. It withstands the oxidizing action of potassium bichromate very well and possesses good fastness to light. It is therefore valuable in the shading of chrome colors.

Recipe No. 10.

Black on Worsted Yarn.

Era Black B on 100 lbs. worsted yarn. Prepare the dye bath with

5 lbs. Era Black B.
(Thomas Leyland & Co., 53 India St., Boston.)
10 lbs. Glauber's Salt.
5 to 10 lbs. Acetic Acid.

Enter yarn at 120° F. and bring to the boil. After ¾ hours boiling add

1 to 2 lbs. Sulphuric Acid,

and boil ½ hour longer, or until the bath is exhausted.

Then after treat in the same bath with

1½ to 2 lbs. of Potassium Bichromate

for ½ hour at boil. Wash well.

Era Black B produces excellent shades of black,

possessing excellent fastness to light, milling, perspiration, acids, alkalies and steaming. It is especially suitable for dyeing loose wool, slubbing yarns, piece goods and felt hats.

Recipe No. 11.

Red on Cotton Yarn.

Triazol Red 6 B on 100 lbs. cotton yarn. Prepare the dye bath with

2 lbs. Triazol Red 6 B.
(Geisenheimer & Co., 189 Front St., New York.)
2 lbs. Soda Ash.
20 lbs. Glauber's Salt.

Enter at 170° F., bring to a boil and dye at a boiling temperature for one hour.

Triazol Red 6 B gives a shade resembling a very blue shade of Turkey red. It dyes very level, and is superior to Benzo Purpurine in fastness.

Recipe No. 12.

Black on Worsted Yarn.

Azo Merino Black B E on 100 lbs. worsted yarn. Prepare the dye bath with

6 lbs. Aza Merino Black B E.
(Cassella Color Co., 182 Front St., New York.)
15 lbs. Glauber's Salt.
5 lbs. Sulphuric Acid.

Enter yarn at 180° F., bring to boil and dye at a boiling temperature for one hour or until the color is exhausted from the bath.

Azo Merino Black B E dyes perfectly level, penetrates well and gives a bloomy shade resembling logwood. The shade does not seem to change in artificial light. Its fastness to the common color destroying agencies is also very good.

Recipe No. 13.

Brown on Worsted Yarn.

Domingo Chrome Brown B on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Domingo Chrome Brown B.
(C. Bischoff & Co., 88 Park Pl., New York.)
4 lbs. Sulphuric Acid.
15 lbs. Glauber's Salt.

Enter at 180° F., bring to a boil and dye for one hour, exhausting the bath.

When the dye bath is exhausted add

3 lbs. Potassium Dichromate

and after treat for ½ hour at a boiling temperature.

Domingo Brown B dyes evenly and produces an excellent shade of reddish brown. It possesses the common properties of the acid dye stuffs.

Recipe No. 14.

Yellow on Cotton Yarn.

Katigen Yellow G on 100 lbs. cotton yarn. Prepare the dye bath with

20 lbs. Katigen Yellow G.
(Farbenfabriken of Elberfeld Co., 40 Stone St., New York.)
20 lbs. Sodium Sulphide Crystals.
6 lbs. Soda Ash.
60 lbs. Glauber's Salt.

Enter at 170° F., bring to a boil and dye at a temperature just below boiling for one hour. Wash and after treat in a bath made up with

3 lbs. Potassium Bichromate,
3 lbs. Copper Sulphate,
5 lbs. Acetic Acid,

½ hour at 170° F.

Katigen Yellow G without after treatment gives a much brighter shade of yellow, which in itself possesses good fastness. The after treatment renders the shade duller, but increases its fastness.

Recipe No. 15.

Brown on Cotton Yarn.

Sulphur Catechu R on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Sulphur Catechu R.
(Berlin Aniline Works, 213-215 Water St., New York.)
15 lbs. Sodium Sulphide.
5 lbs. Soda Ash.
50 lbs. Glauber's Salt.

Dye at a temperature of 180° to 200° F. for ½ hour, then after treat in a bath made up with

5 lbs. Zinc Sulphate,
5 lbs. Acetic Acid,

at ordinary temperature for ½ hour.

Sulphur Catechu R gives an excellent and fast shade of brown.

Recipe No. 16.

Orange Red on Worsted Yarn.

Chrome Orange on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Chrome Orange.
(Sykes & Street, 85 Water St., New York.)
3 lbs. Acetic Acid.
1½ lbs. Potassium Bichromate.

Enter the previously well cleansed yarn and dye at a boil until the bath is exhausted, which will take about one hour, and then continue the boiling twenty minutes to insure complete fixation of the color.

Chrome Orange gives a bright and fast shade of reddish brown character. The great advantages of this dyestuff are the obtaining of fast shades without any previous mordanting or special after treatment, and that direct additions may be made to the dye bath without cooling it.

Mill News.

COTTON.

New Mills.

Connecticut, Hawleyville. The New England Lace Manufacturing Co. is a new concern, manufacturing lace curtains. Plant was shut down for one week recently and has started up making a new kind of lace.

*Georgia, Athens. The Bailey and Arnold Co., reported incorporated to manufacture towels, sacks, rope, cord, etc., will begin work within sixty days on installation of equipment.

Georgia, Marietta. The Standard Press Cloth Company has been organized with H. M. Sessions as president and treasurer, E. J. Powers, vice president, and Thomas Keenen, secretary, and A. F. Parker, superintendent. A plant will be established for manufacturing pressed cloth used by cotton seed oil mills. It is expected to have the mill in operation next month.

*Massachusetts, Holyoke. The Bullard Thread Company has purchased the Cressey Thread Co.'s plant. They have as yet taken no action regarding purchase of the Holyoke plant.

New Jersey, Braddock. (P. O. address Cedar Brook, Camden Co.) Frank Bailey, the well-known builder of yarn drying machinery and manufacturer of dye sticks, whose works are at Braddock and post office address Cedar Brook, Camden Co., N. J., is interested in a new mill which is to be built on his property and adjoining his present works, although it will be an entirely separate enterprise. A new building, about 70 by 25, 2 1/2 stories high, will be built, with engine and boiler house. A new company will be formed, which will probably be known as Bailey-Steel Mfg. Co., and associated with Mr. Bailey in this enterprise are his son and Mr. J. Steel, a practical man and familiar with the manufacture of all classes of upholstery goods. A line of novelty upholstery goods will be made, especially designed by Mr. Steel, who will be manager of the new enterprise. Looms adapted for this work will be installed. Work on the building will be begun very shortly, and it is expected to get the mill in operation in time for the next season's trade, which opens in September.

Although Mr. Bailey is largely interested in this new enterprise, it will in no way interfere with his other business, to which he will continue to give his exclusive time and attention.

*New York, Pike. Work will start about March, as early as weather permits, on erection of new building for the Textile Specialty Co., recently incorporated with capital stock of $100,000. This concern, of which Robert H. Peters (Batavia), is president and L. A. Mason (Buffalo), treasurer, will manufacture a cotton pile fabric, child's diaper. Plant will be equipped with 20 to 50 looms and 2 to 5 sewing machines. Will instal a bleachery, and use steam and water power. They expect to start operations during May, 1904.

*North Carolina, Dallas. The machinery is being installed in the new plant for the Morowebb Cotton Mill. It is expected that the plant will be ready to start up about the middle of January.

Ohio, Cincinnati. The Railway Supply & Manufacturing Company, Joseph Joseph & Bros. Co., proprietors, are to form a new company with a capital stock of $1,500,000 to build and operate two new mills. One plant will be built at Charlotte, N. C. They are looking up suitable sites for other plant in Boston, Mass. They will manufacture cotton mill waste into wadding, batting, carpet warp, blankets, etc.

Ontario, Toronto. It is reported that the Hoffman Corr Manufacturing Co., recently taken over by the Universal Thread Co., Fitchburg, Mass., will erect a cotton batting mill at this place.

*Rhode Island, No. Smithfield. Work is nearly completed on the new electric power house for the Blackstone Manufacturing Co.

*South Carolina, Dillon. Operations will soon be started in the Maple Cotton Mills. This concern is capitalized at $100,000. The original plan was for 5,000 spindles, but work will begin with 7,296 on hosiery yarns. The main building is 300 by 77 feet, and will be operated by steam. G. D. Barlow is superintendent of the mill.

*South Carolina, Central. The new building for the Isaqueena Mills is nearly ready for installation of the machinery (10,000 spindles and 325 looms).

*South Carolina, Columbia. W. J. Keenan is president and treasurer of the Keenan Yarn Mill, incorporated with capital stock of $60,000. They will manufacture cotton waste yarns, 3's to 8's, single and double, mule spun on the woolen principal. Work will be started at once on erection of new building, which they propose having in operation about June 1st. The machinery has been contracted for.

*South Carolina, Liberty. Work will start about the first of next month on erection of the new mill for the Calumet Manufacturing Co. The plant will be equipped with about 5,000 spindles.

Enlargements and Improvements.

Alabama, Anniston. The Adelaide Cotton Mills have recently completed installation of $12,000 worth of additional machinery, greatly increasing the capacity of the plant.

*Connecticut, East Hampton. The Summit Thread Company has completed work on the new bleaching department recently installed in the plant.

Connecticut, Middletown. The Rock Fall Spinning Mill of Russell Mfg. Co. is being changed to a weaving mill. They are throwing out yarn spinning machinery and putting in looms for narrow fabrics.

Connecticut, Poquonock. Operations have been resumed by the Health Underwear Co., whose plant has been closed for nearly two weeks, for building of a new flume.

*Georgia, Athens. The Mallison Braided Cord Co., which has made many large additions to the plant, now operates same by electricity.

*Georgia, Gainesville. It is expected to have the Gainesville Mill, which is being rebuilt and equipped with new machinery, in operation by April.

*Massachusetts, Fall River. The new weave shed for the Luther Mfg. Co. will be 104 by 265 feet, two stories, stone. When completed they will have a total of about 1,000 looms and 42,700 ring spindles. It is not known just when operations will be started in the new additions.

Massachusetts, Fitchburg. The Universal Thread Company has been incorporated with capital stock of $100,000 and takes over the plants of the Hoffman-Corr Manufacturing Co. and the Corr & Hoffman Co. P. H. Corr is president of the company; F. A. Whitney, vice-president; Geo. F. Hoffman, treasurer.

Massachusetts, Housatonic. The Monument Mills have recently installed 16 new looms in the weave shed. The large beaming machine has been removed to new room recently built.

*Massachusetts, Northbridge. The new storehouse for the Paul Whitin Mfg. Co. has been completed. An additional story has been built to the stone mill. The foundation has been put in for the new mill, reported to be erected. Work is nearing completion on an addition to the picker house, which will be ready for occupancy in a few days.

New Jersey, Beverly. The Wall Rope Company is installing new machinery in the plant which they recently purchased at this place.

*North Carolina, Bessemer City. The Bessemer City Cotton Mills, reported to instal additional looms, will put in 192 (gingham) looms, which will give them a total of 406 looms.

North Carolina, Charlotte. The Charlotte Cotton Mills Co. has acquired the building formerly used by the Gold Crown Hosiery Mills and is equipping same for finishing.

North Carolina, Newberry. The Newberry Cotton Mills have awarded contracts for additional machinery, principally carding and spinning, to be installed in the mill. It is hoped that the additional machinery will be in operation by January 1st.

North Carolina, Raleigh. An addition 40 by 38 feet will be built to the Raleigh Cotton Mills. They will install some cards, a lapper and other machines, which have been contracted for.

*North Carolina, Rockingham. The Pee Dee Cotton Mills have started operations in their new addition, in which additional spindles and looms have been installed.

*North Carolina, Spray. The Morehead Cotton Mills which have recently completed installation of 4,000 spindles have placed a contract for 120 looms to be installed in plant, previously run exclusively on yarns.

North Carolina, Statesville. Work is progressing on erection of an addition to be used as a dye house. When completed the plant will make colored hosiery yarns.

Pennsylvania, Philadelphia. Contract has been let by John Bromley & Son for the erection of a new mill at Lehigh Avenue and A street. The building is to be 150 by 60 feet, brick, three stories, of slow burning construction.

Rhode Island, Ashton. The Ashton Mill has been closed for a week or ten days, for purpose of making repairs.

*South Carolina, Charleston. The Royal Bag & Yarn Mfg. Co. has increased the capital stock from $325,000 to $475,000, for purpose of doubling the plant as previously reported.

South Carolina, Dillon. The Dillon Cotton Mills have installed 1,400 new spindles in the plant. A new engine is being installed and other minor machinery.

South Carolina, Greenville. The Brandon Mills are installing 100 more looms in the mill. They are also putting additional machinery in other departments.

South Carolina, Fairmont. The Tyger Cotton Mills Co. are to increase the number of spindles in the plant from 8,000 to 16,000.

South Carolina, Lando. The Manetta Mills have placed contract for 15,000 spindles in the new addition recently completed. It is hoped to have the additional machinery in operation by February.

Virginia, Norfolk. The Margolious Cotton Mills Company has changed the firm name to the Margolious Company, Inc. The capital stock has been increased from $50,000 to $150,000. R. Margolious is president of the concern.

Mills Starting Up.

Rhode Island, Arcadia. Operations have been resumed by the Roger Williams Cotton Mills, which have been closed for the past three weeks.

*Rhode Island, Providence. Operations have have been resumed in the American Tubing & Webbing Co.'s mill. This plant was recently purchased by the Glendale Elastic Fabric Co., of Easthampton, Mass., which will continue the plant here.

Mills Shutting Down.

Pennsylvania, Philadelphia. Daniels & Kane, who recently started up in the manufacture of damasks in the Dale Mill, Gillingham street, have gone out of business.

Pennsylvania, Pittston. It is reported that the Franklin Mills are about to shut down their plant. The work in all departments has been stopped, with the exception of a few braiders which are running on orders which have to be filled. The company has a capital of $50,000 and manufactures cotton tapes, braids and bindings on 26 looms and 250 braiders, employing 50 hands. The mills will be started up again when the cotton market is in a more steady condition.

WOOLEN.

New Mills.

*New Hampshire, Laconia. The Laconia Woolen Co. has started operations in their plant with two sets cards and 10 looms. They have ordered 12 more looms and 4 sets of cards. Dress goods and repellants are made.

New Jersey, Passaic. The Botany Worsted Company will start work in the spring on erection of a new mill.

Ohio, Springfield. The Enterprise Mfg. Co. has been incorporated with capital stock of $40,000 for

the purpose of manufacturing blankets, gloves and mittens. John McCoy is president, Dr. E. H. Smith, vice-president, and John Goodfellow, secretary and treasurer.

Pennsylvania, Philadelphia. All wool Smyrna rugs in sizes of 30 and 36 inches are being manufactured on six looms by Wiliam H. Hartley at 2306 Waterloo street, the rugs being sold direct. Mr. Hartley, who is just starting up in this business, has for many years been engaged as a public designer and card stamper, and is well known for the beauty and exclusiveness of the designs which he brought out from time to time. He states that he has just gotten up some very fine designs for Oriental rugs which he expects to have woven and on the market by the middle of December.

*Pennsylvania, Philadelphia. Several weeks ago we made mention through our columns of a new mill to be started here in which Mr. A. Demetre of New York was interested. We may now say that the mill has been started and is known as Andrew's Mill Co., and is located at Leiper and Adams streets. The officers of the company are J. Dubrulle, president, E. Mathon, vice-president, both being located in Toureoing, France; A. Demetre, managing director, a partner in the firm of King, Beals & Co., 395 Broadway, who will act as the agent for the mill and Mr. A. Veluard, superintendent. Mr. Veluard comes from Paris, France, where he is well known to the textile trade as a manufacturer of a fine grade of fabrics. Thirty Crompton and Knowles looms are now being run in the mill on ladies' dress goods, and more looms will be added each month until its full complement of 90 is reached.

Pennsylvania, Philadelphia. Dodd & Leibert is the name of a new concern recently started in this city manufacturing ingrain carpets on 12 looms. They report being very busy turning out carpets, which they sell to jobbers and direct to the retailers, Mr. Dodd being the superintendent. This establishment is located at 2335 Mascher street.

*Rhode Island, Woonsocket. The Scotia Worsted Mills have been incorporated with capital stock of $70,000, to operate the Simson & Kirkaldy Mill, recently purchased. James D. Colt, Montgomery Rollins and Benjamin E. Bates are interested.

Enlargements and Improvements.

Connecticut, Glastonbury. The Crosby Mfg. Co. has resumed operations after shut down of about ten days for purpose of instaling new boiler and waterwheel.

*Connecticut, Thompsonville. The Upson-Martin Carpet Co. is equipping their new dye house with new machinery.

Connecticut, Woodbury. Daniel Curtiss' Sons have recently completed installation of additional cards and looms in the plant. A new boiler was also put in.

Maine, Dexter. An engine has been installed in the Morrison Woolen Company's mill.

Massachusetts, Auburn. It is reported that the Hogg Carpet & Manufacturing Co. will utilize the extra power the company have at its plant here, after the development of the water power is completed. Plans are reported well under way for enlargements to buildings and reconstruction of the old ones, although it is stated they will not start building operations until spring.

Massachusetts, Cherry Valley. The Chapel Mills Manufacturing Co. has installed a set of cards and 16 looms in the Brick City Mill.

Massachusetts, Dalton. A new boiler is to be installed in the Dalton Woolen Co.'s mill.

Massachusetts, Franklin. The Franklin Yarn Company, which has been operating its plant to full capacity for night and day for past few months, is installing some additional machinery.

Massachusetts, Lowell. Brown & Whittier have leased space in another building and have installed their mending and finished cloth inspection there.

Massachusetts, North Andover. M. F. Campbell is installing two sets of cards and two mules in the mill for manufacturing yarns for woolen mills.

Massachusetts, Webster. A small addition is being built to the American Woolen Co.'s Webster Mill. A few cards will be installed for the purpose of adjusting properly the work of the various departments of the plant.

Massachusetts, Webster. S. Slater & Sons are installing 5 additional sets of cards in the mill. They have recently put in additional mules.

Mississippi, Corinth. About $50,000 will be expended by the Alcorn Woolen Mfg. Co. This plant is now operated on cassimeres with an equipment of 24 looms.

New Hampshire, Penacook. The Dustin Island Woolen Mills which have recently completed a new dye-house, are making another addition to the mills.

New York, Waterloo. The Waterloo Woolen Mills have installed 20 new looms in the mill.

North Carolina, Smithfield. The Smithfield Cotton Company is to issue $20,000 additional preferred stock.

Ontario, Alton. William Algie has installed some additional machinery in the mill.

Pennsylvania, Clifton Heights. An additional set of cards has recently been put in the Caledonia Mills Company's plant.

Pennsylvania, Philadelphia. Mr. Karl Rost, 4329 Lancaster Avenue, who has been manufacturing rag carpets for some time at that address, is about to have patented a new loom for the manufacture of tapestry carpets. Mr. Rost is now working on samples of carpets produced by this machine, which he says, are far superior to any now on the market, and will have them ready to show to the trade within a short time.

Pennsylvania, Norristown. The new building for William Watt & Son is about completed. Its dimensions are 80 by 30 feet, four stories and basement and in it they will put 1 set cards, 2 mules and 6 looms, making an increase of about one-fifth over their former capacity. Mr. Preissler, the superintendent, states that their increasing business compelled them to put up this new building and they will install the new machinery in it at once. They manufacture fancy cassimeres.

Pennsylvania, Philadelphia. Contract has been let for additions to be built to the dye house and drying room of the Southwark Mills Company's

plant at Eighth and Tasker streets. About $6,000 will be expended.

Pennsylvania, Philadelphia. The contract has been awarded for the erection of the new factory to be erected for Caleb J. Milne & Sons, manufacturers of dress goods, shirtings and fancy textiles, at 10th and Washington Avenue. The building will be four stories high 200 by 50 feet, costing about $50,000 and will be of the slow burning type. The work will be begun after January 1st.

Rhode Island, Oakland. The Coronet Worsted Mills have added two new spinning frames in the mill.

Rhode Island, Potter Hill. Additional mules are being installed in the Pawcatuck Woolen Mills.

*Utah, Springville. The Western Woolen Mills Co., which has been incorporated recently to operate the plant of the Springville Woolen Mills, will start up about January 1st. They have built two new buildings, one 24 by 72 feet, two stories, and one 30 by 50 feet, one story, the latter for picker house. They will manufacture knitting yarns, cotton warp blankets and cassimeres.

*Rhode Island, Providence. The Glendale Elastic Fabric Company of Easthampton, Mass., has purchased the American Tubing & Webbing Co.'s mill, sold at auction recently by the receiver. It is not known whether the plant will be continued here or removed to Easthampton.

Wisconsin, Monticello. The Monticello Woolen Mills are closed while a complete steam heating plant is being installed. These mills will be started up shortly and run the entire winter.

Mills Starting Up.

Massachusetts, Holden. Operations have been started up by the Dawson Manufacturing Co. on full time.

*Pennsylvania, Philadelphia. Operations have been resumed in Joseph Gubbins' waste mill, previously reported destroyed by fire.

Mills Shutting Down.

Massachusetts, Jefferson. Both the Jefferson Mfg. Co.'s mills have been shut down for an indefinite period. Repairs will be made to the machinery during idleness.

Massachusetts, West Rutland. The Lakeville Woolen Co.'s mill has been shut down, owing to an attachment having been placed on the property by Deputy Sheriff Early, in favor of S. Rawitser & Co., of New York. The suit is an action of contract to recover for stock furnished the company.

Rhode Island, Wyoming. The Kenyon & Woodbury shoddy mill has been closed temporarily. It is stated that operations will be resumed as soon as the Carolina Company, for which they supply yarns to a great extent, is operated to its full capacity.

KNIT.

For Knitting Mill News, see Knitting Department.

SILK.

New Mills.

*New Hampshire, Dover. Work is progressing on the new velvet mill for the Cocheco Manufacturing Company. The frame work for the structure is nearly completed. It is expected that the plant, for which machinery has already been ordered, will be ready to start up in the spring.

*New Jersey, Paterson. The Harmony Silk Co., recently incorporated with capital stock of $100,000, will start operating the plant January 1st, 1904. They will throw silk, operating 2,160 spindles at start. David Schmitz is president of the company; H. Walter Baer, treasurer, and W. H. Rogers, superintendent.

New York, Binghamton. Work is progressing on erection of new mill for the Susquehanna Valley Silk Co and it is expected that the plant will be in operation about January 1st. James W. Sturtevant is president of the company and W. J. Haskins vice-president.

*New York, Hamilton. Operations are reported to start at once in the village hall, making silk gloves. If arrangements can be made for securing a suitable number of employees, a new building will be erected for the purpose.

New York, Whitestone (Long Island). Hepner & Horwitz, 30 Howard street, New York, have started a plant for manufacturing braids and baby ribbons. Plant is equipped with 2,000 braiders and 30 narrow looms, and operated by steam power. Goods are sold direct.

*Pennsylvania, Archbald. The Archbald Silk Manufacturing Co. has started operations in their new mill, making black taffeta silk. This concern is capitalized at $25,000. Wm. Law is president; John Carroll, treasurer, and A. R. Morrison, superintendent and buyer. Plant is equipped with 50 looms and operated by steam power. Goods are sold direct.

*Pennsylvania, Duryea. The Dutton Silk Company has been incorporated with a capital stock of $30,000.

Enlargements and Improvements.

New York, Gloversville. The Gloversville Textile Co. has been incorporated with capital stock of $35,000 by J. T. Shanahan, L. E. Winne and A. D. Kyne. They will operate plant of same name at this place.

Pennsylvania, Hanover. The Hanover Silk Company has been incorporated with a capital stock of $100,000.

*Pennsylvania, Jessup. In regard to the new mill to be built here by Valentine Bliss, we learn that a new building will be erected to contain the Roanoke and Peckville plants. It will be for throwing. Expect to employ about 150 people.

Mills Starting Up.

*Pennsylvania, Hazleton. The Duplan Silk Mill has resumed operations.

Mills Shutting Down.

Connecticut, Colchester. The Colchester Silk Mill, A. G. Turner, proprietor, will be shut down for a few weeks.

Connecticut, Shelton. S. Blumenthal & Company's Silk Mill at this place has been shut down for an indefinite time. On account of the dullness in trade it was announced that a reduction would be

made in the wages of the operatives, and that at a meeting held by the latter it was decided not to accept the cut, for this reason the mill was shut down.

New York, Delhi. The Leonard Silk Mill, branch mill of the Caspers Silk Co., Paterson, N. J., has been shut down and machinery removed to Paterson, N. J.

Pennsylvania, Hazleton. The Duplan Silk Mill at this place has been shut down indefinitely owing to strike of the operatives regarding wages.

MISCELLANEOUS.

New Mills.

Massachusetts, Brockton. The Brockton Dye Company is a new concern recently incorporated with capital stock of $6,000. George S. Tougas and W. H. Collicot are interested.

New York, Greenwich. Operations are reported to start in a few weeks in the new Linen Underwear Co.'s mill. This is the plant in which H. M. Sweet, LeRoy Thompson and John P. Doane are interested. S. J. Brown, formerly of Belfast, Ire., will be superintendent of the plant.

Pennsylvania, Easton. James Holt, formerly with the Standard Silk Mill, has formed a company for purpose of finishing silk. Space has been leased in the Phillipsburg Silk Mill Co.'s plant.

*Pennsylvania, Easton. The Perfect Silk Finishing Company has recently been incorporated with capital stock of $10,000, and is the name under which the new plant reported to be started here by James Holt will be operated. They will dye and finish silk goods and crepe de chines.

Rhode Island, Tiverton. A new dye plant has been started here by Patrick Crosson. A large two story building has been erected and equipped with up to date machinery.

Enlargements and Improvements.

Massachusetts, Lawrence. The Lawrence Dye Works Co. expect to have their new addition, three stories, completed by January 1st. The top floor will be used for yarn spooling, the second for gray cloth stock room and the lower floor as an addition to the dyeing department. Considerable new machinery has also been added.

Massachusetts, North Grafton. Work is under way on erection of a drying building for the Finlayson Flax Spinning Co.

Pennsylvania, Philadelphia. Contract has been let for the erection of an addition 45 by 57 feet, two stories, brick, to the boiler and engine house of the Pennypack Yarn Finishing Co., at Holmesburg. An additional building, 14 by 17 feet, one story, will also be built.

FAILURES AND SUSPENSIONS.

Massachusetts, Medway. It is reported that Senior & Singleton, manufacturers of woolen goods have made an assignment to Bradley M. Rockwood, of Medway, for the benefit of the creditors. Statement has not been issued regarding the liabilities and assets. The mill will continue in operation for the present under Mr. Rockwood's management.

New York, Cohoes. A petition in voluntary bankruptcy has been filed by Albert W. Davitt, proprietor of the Mohawk River Mill, manufacturing ladies' and children's flat wool underwear. Frank B. Peck of Waterford has been appointed receiver. The liabilities are placed at $148,583.01, with assets of $86,456.30.

FIRES.

Canada, Montreal. The Dominion Cotton Company's plant has been badly damaged by fire which started and was confined to the sixth floor of the building.

Connecticut, Plainville. The Plainville Mill of the Bristol Manufacturing Co. has been damaged by fire which started in the picker-room. Loss on machinery and stock is estimated at $25,000, fully covered by insurance. It is thought that operations will be resumed in about six weeks.

Georgia, Rome. The Floyd Cotton Mill has been gutted by fire. The loss, estimated at $10,000, is covered by insurance.

Maine, Abbott Village. The Moosehead Woolen Company's mill has been destroyed by fire, which originated in the picker room. The loss is estimated at about $15,000; insurance $3,000.

Maryland, Elkton. The engine room, dye and stock rooms of the Deibert & Wilson's mill were destroyed by fire. Loss, estimated at $2,500, is covered by insurance.

Michigan, Detroit. The Progressive Knitting Mills were damaged to the extent of about $10,000 by fire, which started in the basement. More damage was done by water than fire.

Massachusetts, Fall River. About $10,000 worth of damage was done to No. 1 mill of the Fall River Iron Works Mills, by fire which started in the belt tower. The damage was mostly by water.

New York, Brooklyn. Kaltenbach & Stephen's silk mill was damaged by fire recently. The loss is placed at about $1,000.

Pennsylvania, Philadelphia. J. Spencer Turner Co.'s mill was damaged to the extent of about $2,500 by fire which started in the wool spinning department.

FACTS AND GOSSIP.

Alabama, Enterprise. It is reported that a knitting mill is projected here. Company is to be capitalized at $60,000.

*California, Napa. It is reported that parties from Oregon have been looking over the Napa Woolen property, owned by E. H. Tryon, with possible view of removing here and putting the mill in operation.

Colorado, Denver. It is not known just when operations will be resumed in the Overland Cotton Mills, owing to state of the concern's financial affairs.

*Connecticut, Staffordville. E. C. Pinney has been appointed permanent receiver of the Staffordville Woolen Company.

Georgia, Atlanta. The Cherokee Cotton & Waste Company has been incorporated with capital stock of $100,000 by J. H. Crutchfield and Cuyler Smith.

*Georgia, Tennille. The Tennille Cotton Mills have again been placed in the hands of a receiver. Judge Burwell and Dr. C. V. Smith have been appointed co-receivers to manage the property, which will be advertised and sold by them at private sale.

Maine, Kittery. The Fairmount Wool Scouring & Manufacturing Co. has been incorporated with capital stock of $10,000. F. J. Sutton is president of the company and P. L. Andrews, treasurer.

Maine, Sandy Point. M. Grant and H. Hopkins of Stockton, have purchased Mrs. M. Black's store and stock of goods.

*Massachusetts, Methuen. Daniel Fitzgerald, reported having started up commission weaving last spring, has given up the work.

Massachusetts, Northampton. At meeting held recently by the directors of the Nonotuck Silk Co., Samuel Lee was elected treasurer to succeed the late George Ray.

Massachusetts, North Attleboro. It is reported that the Royal Textile Co., of Claremont, N. H., will remove plant to this place.

Massachusetts, Pittsfield. The Pontoosuc Woolen Company has received a large number of orders and the weaving department, with some others, is operated until nine o'clock evenings.

Massachusetts, Pittsfield. David Campbell has been elected president of the Pontoosuc Woolen Company, to succeed the late William R. Plunkett.

Massachusetts, Worcester. A petition has been filed in the Superior Court at this place for dissolution of the A. W. Darling Woolen Company.

*Mississippi, Columbus. We have been advised that nothing has yet been done concerning the knitting mill projected.

Mississippi, Stonewall. Dr. O. F. Cawthorn, president of the Stonewall Cotton Mills, has sold his interest in the concern to T. L. Wainwright, who was elected president, succeeding Mr. Cawthorn.

*Missouri, Carthage. Witten McDonald, previously reported as interested in establishing a cotton mill at this place, is also stated to be interested in locating a knitting mill.

New Hampshire, Hooksett. The Dundee Mills are operating the weaving department nights to fill contract for toweling.

New Hampshire, Tilton. The Elm Mills Woolen Co.'s mill is being operated with night and day force.

*New Jersey, Paterson. The Seyer & Corwin Silk Dyeing Co.'s plant has been sold at auction in lots to the Liberty Silk Dyeing Co., Kearns Bros. and Formanns, Stumpf and Sharpe.

New York, Binghamton. It is reported that the Taylor Silk Mfg. Co., of Paterson, N. J., has been making inquiries regarding vacant building at this place.

New York, Gloversville. The Gloversville Felt Co.'s entire plant is offered for sale.

New York, Hamilton. It is reported that efforts are being made to locate a silk factory here. They ask that $20,000 be subscribed locally. About $17,000 has been secured so far. The Board of Trade is interested in the matter.

New York, Unionville. It is reported that parties from Gloversville and New York are negotiating with Eber L. Brown, relative to starting a glove factory in the building formerly operated as a silk mill.

*New York, Valatie. The new plant reported to be started here as the Valatie Dye Works, has been abandoned.

New York, Valatie. It is reported that several parties have been inspecting the Wild Mills, which have been idle for some time. This property is now owned by one of the Hudson banks, having been acquired at mortgage foreclosure sale.

North Carolina, Cliffside. The Cliffside Mfg. Co. is reported as contemplating doubling the plant and expect to start work on the same in the spring.

North Carolina, Weldon. J. T. Evans and J. Bradbury are reported interested with Paul Garrett in getting estimates on cotton mill machinery, etc., relative to establishing a plant here.

Ohio, Portsmouth. It is reported that a project is on foot for establishing a muffler and knitting works here.

Pennsylvania, Bloomsburg. Operations have been resumed in the Bloomsburg Silk Mills, which have been running on three-quarter time for past two months.

Pennsylvania, Chambersburg. N. P. McTague and A. S. Baker of Scranton are reported as interested in establishing a silk mill and have been investigating sites at this place.

*Pennsylvania, Chester. The Chester Dock Mills, which have been idle for some time have been sold to a leather manufacturing concern.

*Pennsylvania, Eddystone. The Eddystone Print Works, which have resumed operations after idleness of some time, have been reorganized. W. Percy Simpson is president and treasurer of the company; Edward K. Nelson, vice-president and W. F. Keenan, secretary.

Pennsylvania, Parsons. It is reported that a new silk mill has been established here.

*Pennsylvania, West Conshohocken. The Conshohocken Woolen Company has purchased the George McFarland Company's mill, which is equipped with 6 sets cards. The company has a large government contract to fill. Mr. Elbridge McFarland, secretary and treasurer of the Conshohocken Woolen Co., was also president of the McFarland plant.

Rhode Island, Hope Valley. It is reported that Walter Rogers of this place is interested in project on foot for establishment of a linen mill and that the necessary capital is being solicited. They propose equipping a local cotton mill for the purpose.

Rhode Island, Pawtucket. John E. Bland & Co., bleachers and dyers, have made an assignment to J. W. Daniels for benefit of the creditors. It is stated that the liabilities do not amount to more than $3,000.

Rhode Island, Riverpoint. It is reported that Robert S. Reoch and other foremen, formerly with

the Clyde Print Works, are negotiating for purchase of the Cranston Print Works, although the latter concern denies the rumor.

South Carolina, Spartanburg. It is reported that a large silk mill will be erected here by a northern silk manufacturer.

*Texas, Marble Falls. M. H. Reed & Company write that the project of establishing a cotton mill will be delayed owing to the price of cotton and other things. They have extra good water — almost self developed.

*Texas, Waco. We have been advised by the Business Men's Club that there is no hosiery mill in contemplation at Waco.

West Virginia, Grafton. Thomas Haggerty of Reynoldsville, Pa., is reported as interested in securing subscriptions toward locating a silk mill at this place.

Personals.

Cotton.

Edward J. Gilligan, superintendent of the Windham Mfg. Co., Willimantic, Conn., and his nephew, John Gilligan, who has been assistant superintendent, have ended their business relations with these mills. Mr. Gilligan came to Willimantic about four years ago from Fall River, and has conducted the affairs of the corporation in a very successful manner. Mr. Gilligan is to take a much needed rest, after which he may consider an offer which he has to become superintendent of a Fall River, Mass., corporation. The new superintendent to succeed Mr. Gilligan is a Mr. Bromberg of Fall River.

T. C. Wilson, late overseer of spinning and assistant superintendent of No. 1 Henrietta (N. C.) Mills, is overseer of spinning at Gastonia, N. C.

Benton Crankshaw has succeeded A. H. Bailey as overseer of spinning at the Nashua (N. H.) Mfg. Co.

William J. Brick, loom fixer in the Boott Mills, Lowell, Mass., has resigned to accept a position as secondhand in No. 6 Merrimack Mill, this city.

J. W. Taylor, late superintendent of the Canoe River Mill at Taunton, Mass., has accepted position of manager of the new 10,000-spindle yarn mill of the Amazon Knitting Co., at Muskegon, Mich. This mill is equipped throughout with fine new machinery, and plans are made for an increase to 15,000 spindles later. Mr. Taylor will superintend the installation and starting up of machinery.

J. B. Bolton, of North Abington, Mass., has succeeded Mr. Spencer as overseer of weaving at the Bristol Mfg. Co., New Bedford, Mass.

L. W. Dexter is overseer of spinning at the Barker Mill, Auburn, Me., and the overseer of carding is William Battell.

R. G. Sparrow, who for the past nine years has been secretary and treasurer of the Columbia Cotton Mills of Columbia, Tenn., tendered his resignation at a special meeting of the Board of Directors of the company recently. The resignation was accepted with regret, and Watts F. Embry elected to the position. Mr. Sparrow goes into the phosphate business.

I. W. Curtis, overseer of carding in the mill of the Windham Mfg. Co., Willimantic, Conn., has resigned. He has accepted a position in a mill in Providence.

E. E. Bartlett, superintendent of the Aurora (Ill.) Cotton Mills, has received an offer to become manager of the extensive cotton mills at Augusta, Ga., and leaves shortly for that city.

James H. Boyd, overseer of winding at the Johnson-Dunbar Mills Co., North Adams, Mass., has resigned.

E. V. Livesey has resigned from the position of overseer of carding at the Willimantic Linen Co., Willimantic, Conn.

F. Romberg has succeeded Edward J. Gilligan as superintendent at the Windham Mfg. Co., Willimantic, Conn., and Edward Flanagan has succeeded John J. Gilligan as boss weaver.

Thomas Regan has resigned as superintendent of the James J. Regan Mfg. Co., Rockville, Conn., and Patrick O'Keefe is his successor.

Owing to resignation of M. A. Rawlinson, superintendent of the Tremont & Suffolk Mills at Lowell, Mass., there have been some changes in the mill. John H. Dunn, who has filled the position of assistant superintendent, becomes general manufacturing superintendent. Col. A. M. Chadwick, pay master, retains the responsibility of that position and also assumes the duties of Supt. Rawlinson's place. William H. Thayer becomes assistant paymaster, and while he will do much to relieve Col. Chadwick's duties, the latter will continue to be responsible for the duties of the paymaster's office.

Robert William Boys, who took charge of weaving at the Williamstown Mfg. Co., Williamstown, Mass., four years ago, has resigned, and entered the employ of the West Boylston Mfg. Co., Easthampton, Mass., having charge here of weaving, slashing, drawing-in and cloth rooms. He had given the best of satisfaction at Williamstown, and leaves a large circle of friends, who wish him success in his new position.

Woolen.

William E. Clogher, who has been assistant designer for the Hinsdale Woolen Co., Hinsdale, Mass., for the past five years, has accepted the position of superintendent and general manager of the Hampden Woolen Co., Hampden.

George Triestly has been appointed superintendent of the Crown Worsted Mills, Olneyville, R. I. He takes the place of Alfred J. Greaves, who resigned a short time ago, on account of ill health. Mr. Triestly was formerly superintendent of the Glen Falls Worsted Mills at Moosup, Conn.

Mr. Lowe, late of Clayville, N. Y., has the position of overseer of carding at the Moosup Mills, Moosup, Conn.

Joseph H. Ridgings, formerly overseer of finishing in the Daniels Worsted Mill, is now with the

Hennesey Woolen Mills, Conway, Mass., in a similar position.

O. L. Suenderhauf, for the past two years superintendent of the Warren Woolen Company and the Central Woolen Company, Stafford Springs, Conn., has resigned from the Warren Company, in order to devote his whole attention and time to the Central Company.

Stephen N. Burgess of Hope Valley, R. I., has gone to Utica, N. Y., having secured a position as designer at the Globe Woolen Mills.

John Hardacre succeeds W. H. Griffin as overseer of weaving at the Burlington Mills, American Woolen Co., Winooski, Vt.

Alexander S. Taylor, overseer of weaving at the Merrimack Woolen Company, Lowell, Mass., has been promoted to the position of superintendent of that company. James Shaw, second hand, is now overseer of weaving.

David Campbell succeeds the late William R. Plunkett as president of the Pontoosuc Woolen Co., Pittsfield, Mass., and William E. Cushing, of Cleveland, has been chosen director of the same concern.

James Morrison, overseer in the Nye & Waite Carpet Co., Auburn, N. Y., has resigned owing to ill health and returned to Thompsonville, Conn.

William Appleby, of Warren, Me., has been engaged as boss carder for the Crosby Mfg. Co., East Glastonbury, Conn.

R. W. Barnes succeeds Robert Blackwood as superintendent of the Farwell Worsted Mills, Central Falls, R. I.

Ozrell Droexler, who held the position of assistant designer at the Dalton Woolen Mills, Dalton, Mass., has gone to Maynard, Mass., to take full charge of designing department.

David F. Stewart has resigned as dyer at the National Woolen Mill, Streetsville, Ont.

R. J. Parker has resigned as overseer of weaving at the Neponset Woolen Mills, Canton Junction, Mass.

E. T. Albertin has accepted the position of dyer with A. D. Gleason, Gleasonville, Mass.

Cranford W. Barnes is superintendent of the Farwell Worsted Mills, Central Falls, R. I. He is the successor of Robert Blackwood.

Frank Hartley has succeeded George E. Schofield as overseer of warping and dressing at the Riverside Mills, Providence, R. I.

Miscellaneous.

C. L. Black, who has been acting as assistant manager at the Norwich, Conn., plant of the United States Finishing Co., has been made chemist there, and John F. Rogers, of the Silver Springs plant, Providence, R. I., has been appointed to succeed Mr. Black. Mr. Rogers will be assistant to Manager Alex. Shaw.

O. L. Hoyt, formerly of Charlotte, N. C., has succeed F. E. Clow as dyer at the Laconia Dye Works, Laconia, N. H.

Alfred Ruegg, formerly general manager of the Shamokin Silk Mills, Shamokin, Pa., is now treasurer and general manager of the Chenango Silk Company of Binghamton, N. Y.

Arthur L. Baldwin of Lowell, Mass., has accepted a position in the chemical department of the Western Electric Co., Chicago, Ill.

Geo. K. Townsend is with the American Grass Grass Twine Co., St. Paul, Minn.

Paul Lamoiter has resigned his position as manager of the mills of M. Michaeiloff & fils, Moscow, Russia, and accepted a similar position with the Societe de Filature et de Tissage, St. Michael, France.

David Sutherland has succeeded John Steele as overseer of spinning at the Cable Flax Mills, Schaghticoke, N. Y.

Deaths.

Anson A. Swift, one of the pioneer silk manufacturers of Connecticut, died at his home in Southampton, Mass., recently. He was born in Chaplin nearly eighty years ago. He was one of the founders of the Paisley Silk & Thread Company of Mansfield Hollow. After severing his connection with the Paisley concern he entered into partnership in the firm of Bottum & Swift, and for several years they operated the Conantville Silk Mill. Later he sold his interest, and went to Rockville with the Belding Company, where for 20 years he was superintendent of their silk mills.

Charles C. Doty, a well known cotton broker of Providence, R. I., died recently, at the age of 45 years. He was one of the most successful cotton brokers in this part of the country. He was for many years connected with R. H. Deming & Co. His wife survives him.

Richard Madeley, a member of the firm of Pilling & Madeley, hosiery manufacturers, Philadelphia, Pa., died at his home. He was 43 years old. His wife and three children survive him.

The accidental death of John J. Jerome at his country place in Buffalo Park will be deeply deplored throughout Colorado. His prominence at the bar, his long connection with the management of the Colorado Fuel & Iron Company, and his more recent activity as the manager of the Overland Cotton Mills gave him a very wide acquaintance among business interests. He took a large interest in everything pertaining to the welfare of the community in which he lived and his loss will be deeply mourned in all circles of society.

Louis Kraemer of the firm of Louis Kraemer & Co., manufacturers of cassimeres, Reading, Pa., died December 16, aged 76 years. Mr. Kraemer was a native of Germany, coming to this country in 1848.

A. M. Hapgood of Oswego, N. Y., has taken the position of superintendent of the New Britain Knitting Co., New Britain, Conn.

Alfred H. Mothes, vice-president and manager of the Meehan-Mothes Co., manufacturers of tapestry curtains, couch covers, etc., Philadelphia, Pa., died at his residence there recently, aged 43 years. He was born in Saxony, Germany. For several years he was foreman in the mill which later he acquired a large interest in.

James S. Woodward, of Camden, died suddenly on December 2d. He was 63 years old. He had

been a resident of Camden for several years, and was a cotton buyer for James E. Mitchell & Co., Philadelphia.

William R. Plunkett, one of the most prominent men in Pittsfield, Mass., died recently. Mr. Plunkett was born in Pittsfield, April 23, 1831. He received his early education in the public schools there, and completed his education at Yale University and also was graduated from Harvard Law School. Mr. Plunkett's connection with manufacturing enterprises were numerous. He was perhaps best known as the president of the Berkshire Life Insurance Company and in this position and as president of the Pontoosuc Woolen Mfg. Co., he exerted an influence both deep and wide upon the industrial life of Pittsfield and Berkshire.

Allen Bloomfield, a prominent and highly regarded citizen of Richfield Springs, N. Y., died November 16. Mr. Bloomfield was born in the town of Warren eighty-three years ago on a farm. He had moved to Richfield about thirty-five years ago, and among the positions of trust which he held were those of president of the Waiontha Knitting Company, president of the Electric Light & Power Co., director of the Mohawk Valley Bank, the Scotch Cap Company, and until a year ago of the First National Bank of this town. His loss will be severely felt in the community at large.

James J. Tully died at his home in Philadelphia recently. When a young man, Mr. Tully became associated in the business of soap making, which his father had established in 1848, on Master St., and in which he continued all his life. He was a member of the Carrolton Club, the Philopatrian Literary Society, and the Young Men's Benevolent Society of St. Michael's Church. He is survived by his wife and four children.

E. G. Richmond, president of the Richmond Hosiery Mills, Richmond Spinning Mills and the Richmond Cotton Oil Company, of Chattanooga, Tenn., died in that city November 29th, from heart failure and Bright's disease, and his remains were taken to Batavia, N. Y., his old home.

George H. Ray, aged 60 years, treasurer and director of the Nonotuck Silk Co., of Florence, Mass., died November 30th. His death will be a shock to many people. The illness of Mr. Ray has been mentioned, but not as giving cause for alarm, and few knew that he was seriously ill. He was the son of Mr. and Mrs. George K. Ray, and was born in Canterbury, Conn. He enlisted for service in the Civil War at the age of 19. After serving with credit for three years he was mustered out. He went to Leeds a year or two later, where he was employed a short time in a store, and then became bookkeeper for the Nonatuck Silk Co. He remained in the company's office at Leeds until 1881, and then moved to Florence, where he was employed in the office of the company there. In 1884 he was made assistant treasurer of the company, and about seven years ago was elected treasurer. Mr. Ray was prominent in various affairs. He was a man of sterling qualities of mind and character, and efficient in business and kind hearted and generous in disposition. His death will be keenly felt in many quarters. He is survived by his wife and four children.

Robert Hunter, senior member of Robert Hunter & Son, builders of the Bolette condenser and dealers in secondhand machinery, Philadelphia, Pa., died on the 19th of last month. He was born near Glasgow, Scotland, 53 years ago, and 25 years ago came to this country. He worked in mills in Philadelphia as a carder, but soon found his sphere as a salesman, and from his start as a salesman, about 15 years ago, dates the beginning of a prosperous business. A widow and five sons survive him.

George A. Saunders, proprietor of the Pepper Machine Works, was accidentally drowned on December 24. Mr. Saunders' sudden death comes as a great shock to a wide circle of business and social friends. His connection with the knitting machine business covers many years. Associated with Mr. W. H. Pepper he took a large share in the early development of that business, and after Mr. Pepper's death continued it under the name of the Pepper Machine Works. Many of the improvements in this well known line of machinery are due to his skill. Mr. Saunders was a man of sturdy upright New England character, and the many users of Pepper machinery will bear testimony to straightforward business treatment received at his hands. He was one of the oldest advertising patrons of this journal and its predecessors. His advertisement appeared in the first issue of the Textile World and has run continuously ever since.

Mr. John Pendergast, who has been connected with the textile and felt business for many years, died on Jan. 1, 1904, at his home in Chicago. He was born Nov. 15, 1844, at Providence, R. I. At the age of 22 he was superintendent of the woolen department of the Pemberton Mills, and later was superintendent of the Washington Mills for five years. He afterwards became interested in the manufacture of wool boots at Grand Rapids, Hastings and Niles, Mich. He then assumed the superintendency of the Armour Felt Works of Chicago, and after the destruction of this plant, he returned East, where he was engaged in the felt business until two years ago, when he once more returned to Chicago to become superintendent of the Western Felt Works, which firm he was with up to the time of his death.

A year ago Mr. Pendergast became afflicted with serious throat trouble for which he underwent an operation which afforded him only temporary relief.

Mr. Pendergast was prominently connected with several societies in which he was held in high esteem. He leaves a wife and one daughter.

Pennsylvania, Fleetwood. Madeira & Wanner, who removed to this town from Lyons Station about one year ago, are now well established in their new building, which is of frame construction, two stories and basement, 36 by 70 feet. This company started on a very small scale, but the demand for their 144 needle half hose became so great that they had to remove to larger quarters. They are now very busy running 54 machines and producing about 240 dozen per day and will increase this capacity by adding 10 new machines in the early spring. Chas. S. Madeira is the superintendent and manager of the plant. Goods are sold direct and through New York.

New Publications.

The Metric Fallacy, by Frederick A. Halsey, and The Metric Failure in the Textile Industry, by Samuel S. Dale; D. Van Nostrand Company; Illustrated; Price $1.00.

The first part of this work, The Metric Fallacy, is a vigorous protest against the introduction of the metric system into the United States. The author has studied the subject carefully and made a very thorough investigation regarding the use of the metric system throughout the world. The facts which he presents show that in many countries in which the metric system is popularly supposed to be used exclusively, it is used to but a very slight extent, and that it is the single standard in no country, not even in France. In addition to the array of facts, Mr. Halsey exposes the fallacies of those who advocate the adoption of the French system, and presents convincing reasons why the people should be left free to use the system of weights and measures that is best suited to their requirements, and without interference by law. The Metric Fallacy will prove an eye-opener to those who, on account of the persistent assertions of supposedly scientific men, have been led to believe that the metric system is sure to become the world's single standard; that in fact it is already the standard for much the greater part of the world's population; and that Great Britain and the United States are being rapidly left behind in commerce and industry because they persist in clinging to an obsolete and utterly worthless system of weights and measures. This book explodes all these beliefs.

The second part of the book deals with the metric system in the textile industry. The textile testimony before the Committee on Coinage, Weights and Measures of the fifty-seventh Congress, is examined in detail in the first chapter. The author then takes up the general subject of textile weights and measures, describes the Continental chaos of textile standards, compares the English and metric systems and in the last chapter summarizes his conclusions adverse to the metric system. A valuable feature of this part of the work is a list of the world's systems of numbering spun yarn. It gives the basis of each system and the equivalents by the English cotton, run and metric standards. This table was submitted to several French and German textile manufacturers for correction before publication, and is believed to be the most complete list ever published of the world's systems of numbering spun yarn.

Dockham's Jobbing Trade and Department Stores Report and Directory.

The 1904 edition of this directory for the United States and Canada is received. The book contains the addresses of over 2,200 jobbers and 750 department stores, giving the lines carried. It is arranged alphabetically by states and cities. It covers the entire range of dry goods jobbers, men's furnishing goods, etc. Price is $1.00. Published by and received from Stevens, Dockham & Co., 6 Beacon St., Boston, Mass.

Wool Dyeing; Walter A. Gardner; E. A. Posselt, Philadelphia, Pa. Price $5.00.

This is a new work recently published by this widely known authority on dyeing and an idea of its broad scope can be obtained from the following abstract of the table of contents:

Classification of coloring matters; natural dyestuffs, including logwood, redwood, madder, cochineal, kermes, lac-dyes, orchil, cudbear, yellow dyes, indigo, and dyestuffs less commonly used; artificial dyestuffs, including coal-tar dyes, artificial mordant dyes, acid mordant dyes, acid dyes; direct cotton dyes suitable for wool, basic dyes, metallic dyes; methods of dyeing wool in various forms; suitability of dyes for different classes of work; theory of dyeing.

Bulletin of the National Association of Wool Manufacturers.

The frontispiece in the December issue of this bulletin is an excellent portrait of S. N. D. North, the ex-secretary of the Association, who is now the Director of the Census Bureau. The contents of the bulletin are as follows:

A century of tariff controversies; England proposes new fiscal policy; a word of acceptance by the new secretary of the association, John B. McPherson; notice of the presentation to Mr. North of a silver service from the association in recognition of his long and efficient services as secretary; annual wool review. This report is compiled by William J. Battison, the general agent of the association, and is unusually complete; continuation of the report of the Paris Exposition of 1900; obituaries; editorial; industrial miscellany.

Annual Wool Review; National Association of Wool Manufacturers.

This annual review of the wool market begins with an estimate of the number of sheep and then takes up the following subjects: Forest Reserves and Sheep Raising; Weight and Shrinkage; Available Supplies; London Sales; River Plate Wools; Prices; Statistics of Imports; United States Woolen Machinery; World's Wool Production. A chart shows the range of wool prices for a series of years. This review is unusually complete and should be in the hands of every one desirous of obtaining a comprehensive idea of the conditions in the wool market.

Purification of Water for Steam and Drinking; by A. Taveau; Masson et Cie, 120 Boulevard Saint Germain, Paris; Price, $1.00.

A treatise upon the chemical and mechanical means for purifying water. It begins with an account of the constitution of drinking water. This is followed by a study of the chemical reactions serving as basis for removing impurities from water. The reagents used for this purpose form the subject of a separate chapter. The chemical means for purifying water are next described, including a plant for operations on a small scale. This is followed by chapters treating of the mechanical and mixed methods in use. There is a valuable section on boiler compounds and the corrosion of boiler plates. The text is in French.

Weaving Calculations (Die Calculation der Webwaren); J. Schams, Director of the Royal Weaving School at Muenchberg; J. Riedel, Muenchberg, Germany; Price $1.25.

This book begins with an explanation of the methods of distinguishing the warp from the filling in a fabric, and the face from the back of the goods; this is followed by sections dealing with the set of fabrics, loom width, method of reeding, and take-up in warp and filling. An important omission consists in not giving directions for determining the size of the yarn from the sample of goods. Methods of calculating the weight of cloth, material required for given quantity of goods and estimated cost are also given. The text is in German, and while the book will doubtless be useful to Continental manufacturers, the mixture of English, local and metric weights and measures destroys its value for English students.

English Reader (Englisches Lehr-und Lesebuch); Ernst Lehmann; J. Bensheimer, Mannheim; Germany.

This is a text book used in Germany for teaching the English language. It is freely illustrated and printed in fine clear type.

Progress in the Chemical Technology of Textile Fibres (Fortschritte auf dem Gebiete der Chemischen Technologie der Gespinstfasern); Henri Silbermann; Gerhard Kuhtmann, Dresden, Germany. Price $12.00.

The first part of this work treating of the mechanical progress of the textile industry between 1885 and 1900 was issued last year. The second part just received is devoted to the improvement in chemical processes and methods during the same period. The work is practically an abstract of the patents issued in the various countries and presents a great deal of information in a very systematic manner. By means of these books the reader can obtain information which would otherwise entail a vast amount of research among the records of patent offices. In fact, it would be impossible for the ordinary student to secure the information which is here presented in a form very convenient for reference.

Business Literature.

Jeffrey Screens; The Jeffrey Manufacturing Company, Columbus, Ohio.

An illustrated catalogue of the screens built by this firm for treating bone ash, coal, trap rock, chemicals, cement, phosphate, fuller's earth, and all other sharp and gritty materials. It also contains tables of capacity and partial list of the users of the Jeffrey screens.

Power Knitting Machines; Julius Muller, 132 Melrose St., Brooklyn, N. Y.

This is a good sized illustrated catalogue of the different types of knitting machines built by the well known firm of Seyfert & Donner, Chemnitz, Germany. It is in English and will be of much interest to American knitters, who can obtain copies on application to the American agent, Julius Muller, 132 Melrose St., Brooklyn, N. Y.

Cincinnati Air and Gas Compressors, Laidlaw-Dunn-Gordon Co., 114 Liberty St., New York City.

These machines are of medium and small sizes, the steam ends being equipped with plain slide valves and Meyer valve gears and the air ends with poppet valves. One of the compressors is of an entirely new type in that the air cylinders are provided both with mechanically moved valves and with poppet valves, all points in the compression cycle being determined by the mechanically moved valves, with the exception of the opening of the exhaust, which is determined by the poppet valves. This arrangement combines the positive action, noiseless operation and durability of mechanically moved valves with the elasticity of poppet valves, at the same time avoiding the noise and rapid wear of the latter. This pamphlet, which is of convenient pocket size, will be sent upon request to those interested.

Jeffrey Coal Washing Machinery; The Jeffrey Mfg. Co., Columbus, Ohio.

This is a catalogue describing and illustrating what is being done in the coal washing line by The Jeffrey Mfg. Co.

Buffalo Improved Ventilator; Buffalo Forge Co., Buffalo, N. Y.

A booklet describing the improved ventilator of this well-known company. The pamphlet is illustrated with numerous views of the different types of ventilators, as well as a number of the disk wheels built by the same concern.

Buffalo Disk Wheels; Buffalo Forge Co., Buffalo, N. Y.

An illustrated catalogue and price list of the well-known Buffalo disk wheels driven by pulley, steam engine or electricity.

Industrial Plants; Ballinger & Perrot, Philadelphia, Pa.

The November number of this publication contains the second chapter of "The Tale of the Mill" and a number of useful formulae for determining the safe load on columns and beams. A general description with plans and photographs of the new building of the American Baptist Publication Society is also included.

The Hurricane Automatic Stock Dryers; The Philadelphia Drying Machinery Company.

A new booklet illustrating and describing the "Hurricane" automatic dryers, which are being rapidly introduced for drying cotton, wool, hair, rags, stockings, etc., also for carbonizing wool, noils or rags. A few of the recent testimonial letters received from some of the representative firms in this country and abroad are included in this catalogue. The company will be pleased to send copies of the booklet to any firms who may be interested.

Heating and Ventilation of Factory Buildings; W. H. Carrier, M. E.

This is a paper read before the annual convention of the American Foundrymen's Association at Milwaukee last June, and treats of the ventilating

system of the Buffalo Forge Company. It is illustrated with diagrams and photographs showing the arrangement of fans and ventilating pipes, and contains much useful information on this subject so important to every manufacturer.

The Hartford Blowers & Exhaust Fans, Sectional Catalogue, No. 56; The Hartford Blower Co., Hartford, Conn.

This catalogue illustrates and describes the well-known Hartford patent improved adjustable blowers and exhaust fans, steel plate steam and pulley fans, disc fans, counter shafts, blast gates, dust collectors, etc. It is printed on good paper, well bound, with a well designed cover. The Hartford Blower Company, who are mechanical experts in the removal of shavings, saw dust, etc., and make a specialty of installing heating, ventilating and mechanical draft apparatus, will be pleased to send a copy, free of charge, to any one interested.

"Water Meters."

This is the title of a pamphlet just received from the Henry R. Worthington Company, whose new disc meter is described and illustrated with cuts showing the internal construction.

The pamphlet also describes the standard duplex piston meter which has long been so well known for its accuracy, and the Worthington hot-water meter, which is considered an essential part of an engineer's equipment for boiler testing. The latter device has been found of great value in boiler plants for checking up the evaporative values of different kinds of coal, the efficiency of firemen, etc. This pamphlet is an innovation in the way of small leaflets. It is of the standard size for enclosure with letters, 3 1/2 by 6 inches, but instead of being printed upon ordinary coated paper, a high grade of tinted enamel card-board is used, rendering the pages much more durable and satisfactory to handle. To water works officials or others interested in water supply, the pamphlet will be well worth the asking.

New Calendars.

The G. Drouve Co., Bridgeport, Conn.: An attractive office calendar issued by these manufacturers of cornices, skylights, finials, etc.

The Bourse, Philadelphia, Pa.: A calendar in tablet form with space for memoranda opposite each day in the year.

The United States Fidelity and Guaranty Co., Baltimore, Md.: A large calendar for office use illustrated with figures of children representing Columbia, Peace and Plenty.

Comer's Commercial College, Boston, Mass.: A neat and attractive calendar for either home or office is being issued by this well known educational institution.

Firth & Foster Co., Dyers and Finishers, Philadelphia, Pa.: Two large office calendars, one decorated with a copy of "The Sea," a painting by Henry R. Poore, and the other with "The Treasurer," from a painting by J. G. Brown, N. A.

Thomas H. Ball, Philadelphia, Pa.

A very attractive calendar decorated with a reproduction of the painting, "Anemones," by Albert Herter.

Birch Bros. Co., Textile Finishing Machinery, Somerville, Mass.

This calendar has a fine engraving of the High Tor, Matlock, England, and we have been requested to announce that owing to the unprecedented demand for these calendars the supply is exhausted.

S. J. Corey, Dyestuffs and Chemicals, Boston, Mass.

A calendar decorated with a beautifully colored engraving of "The Dizzy Whirl" representing a danseuse. Mr. Corey enjoys a high and well earned reputation for good taste in the selection of calendars which he has been distributing to the trade for a number of years.

Homer F. Livermore, High Grade Castings, Boston, Mass.

A pocket diary with space for each day of 1904.

C. J. Peters & Son, Electrotypers and Typographers, Boston, Mass.

This firm are sending out an office calendar, thoroughly businesslike in every respect, and also a specimen of their work in the form of a picture copied from a German painting showing four children taking their pet dog to the doctor for treatment.

Pope Manufacturing Co., New York City.

A useful calendar in the form of a desk pad.

F. E. Atteaux & Co., Dealers in Dyestuffs and Chemicals, Boston, Chicago, Montreal and Gloversville, N. Y.

A very attractive calendar issued by this well-known firm.

The Arabol Manufacturing Co.

The soluble softening oil, manufactured by the Arabol Manufacturing Company, 100 William Street, New York, is claimed to be one of the finest softening or sizing oils on the market, and to surpass tallow as a softener. Manufacturers like it because it is easy to handle, is always reliable and is not influenced by temperature. It gives a smooth finish to the warps, the threads divide well in the lease rods, and the cylinders of the slasher remain perfectly clean. It is neutral and most suitable for strong and close woven goods, such as corduroys, velveteens, sateens, twills, umbrella cloths, cambric warp, etc.

Notice to the Trade.

The following notice has been issued by the executors of the estate of Chas. B. Alling, Derby, Conn.:

Derby, Conn., Dec. 15, 1903.

Gentlemen:—We are advised in several quarters of rumors making it appear that the continuation of our business is doubtful.

In contradiction to these we beg to take this especial opportunity to advise you that our business positively will be continued, as specifically provided for by will, and any patronage with which we may be favored will receive our careful atten-

tion and all possible promptness in shipments.

There has been no delay or cessation of operations other than necessarily caused by our recent fire, and in regard to this, our last machines to arrive are now here and in course of erection, and this will be completed within the week.

The undersigned has been actively associated with the late management and direction of the business in all its interests for a number of years, and assures your favors every attention with increasing improvements, as may be within our power.

Our sample lines for 1904 are now on the road and in the hands of our representatives, and we respectfully solicit a continuance of your patronage.

Yours very truly,

C. B. Brewster,

Manager A. H. & C. B. Alling.

Norwood Engineering Co.

The business of the Norwood Engineering Co. of Florence, Mass., is continuously on the increase and much credit is due the present management for the same. They are at present adding to their already well equipped establishment a large erecting shop which will be 100 by 100 feet square, and will be fitted up with all the latest and most approved appliances and machinery, including a large traveling crane of the very latest design. This crane will be capable of lifting the heaviest weights possible, and will enable them to turn out a very much larger product than heretofore. This concern builds the well known Wilson filters which are already in use in a large number of the representative textile mills of the country, and from whom they have received many expressions of satisfaction. Besides their line of filters, one of their particular products with which they are doing a large business is their line of mill fire hydrants and any mill contemplating making any additions in their special line would do well to communicate with them for further particulars.

Tape Manufacturers in New Mill.

On another page in this issue will be found the advertisement of Messrs. Hoffman, DeWitt & McDonough. This company having taken over the business of the Hoffman Manufacturing Company, which started in business about two and one-half years ago at Howard and Palmer Sts., Philadelphia, have now removed the entire establishment to their new mill at Cottman and "G" Sts., Ryer's Station on the P. & R. Ry., a suburb of Philadelphia, where they have better facilities for manufacturing their high grade cotton tapes, webbings and their "Diamond" stay bindings, which are well known to the trade as being of the most superior quality. They occupy the entire mill, which consists of a brick building, one story and basement, 30 by 150 feet, the motive power being steam supplied by a 40 h. p. engine and 60 h. p. boiler, which is now driving 18 looms full time in an effort to fill their many contracts now on hand and orders still coming in. They have placed orders for many more looms and it is expected that they will have 30 looms in full operation within a very short time.

A Machine Company Incorporated.

The business of the well known firm of George W. Payne & Co., Pawtucket, R. I., which was established in 1865, has grown to very large proportions, and on account of the constantly increasing business, it was decided to incorporate the company. The broad policy which has been characteristic of this concern will be carried out under the new administration. This company will continue to manufacture the same line of machinery, including the Payne winders for hosiery manufacturers, which wind from cop, skein or bobbin, also improved spoolers, doubling spoolers and quillers. This company has been one of the most successful in its particular field. The following officers have been elected: George W. Payne, President; J. Milton Payne, Treasurer, and Clinton F. Payne, Secretary.

Lakewood's Wooded Drives.

The drive, first among Lakewood's special diversions, still securely holds the favor of the great majority of resorters, and has probably advertised the charms of the place more effectively than any other single agency.

Among the first of the plans for development inaugurated years ago by the corporation owning the Laurel House was the well planned construction of many miles of smooth, hard gravel road, radiating from the village in all directions. The Lake Drive, perhaps the most popular because of its glimpses of water through the foliage, is but one of a long list of drives which are favored both by driving and riding parties, while well-kept walks, punctuated by an occasional wayside bench, are also popular at all times.

The laying out of these drives and walks has been done with artistic taste. They wind in easy curves among the trees over slightly rolling country, and though passing through pine forests at all times, there is a variety and change of view at every bend in the road, and no form of rest is more perfect than to lounge in the easy cushions with eyes to view the passing change of scene, and ears to hear only the ring of hoofs on the hard roadbed.

In spring, flowers fill the air with fragrance, and the birds add life and melody to the hour. Here and there you pass groups of children, with their nurses, building their forts of moss or waist deep in rustling leaves, curiously watched by bright-eyed squirrels busy with their stores of nuts or frisking from branch to branch.

What wonder that the woodland drive is a daily delight, and that it is favored not only by carriages but by riding parties and 'cyclists as well.

The New Jersey Central is the only road reaching Lakewood and its service is the best in the land. A Booklet on Lakewood is sent free to any address by General Passenger Department, C. R. R. of N. J., New York City.

Indiana, Mishawaka. It is reported that the Beatty Felting Co. will make an enlargement to the plant next year. They make felt boots and shoes.

An Important Order Placed on Its Merit.

The Hartford Blower Company, of Hartford, Connecticut, have received an order for furnishing exhaust systems for the buffing and plating departments of the N. Y., N. H. & H. R. R. Company, at their new shops at Readville, Mass.

The apparatus consists of two special direct connected motor driven Hartford adjustable exhaust fans, Hartford patent improved dust collectors, galvanized sheet steel piping, hoods, etc., with many new special fittings and attachments.

This order is a flattering testimony of the high quality apparatus furnished by this company, and one that they may be justly proud of.

Foreign Business Expanding.

Barber & Colman, manufacturers of the Barber knotter for cotton winding, have, in addition to their offices at 25 Royal Exchange, Manchester, Eng., established other offices on the continent at Lille (Nord), 17, Rue Faidherbe, France, and Dresden-A, Reissigerstrasse 25, Germany. Mr. Robert C. Webster is in general charge of foreign business for the present.

Fine English Yarn.

Messrs. Theodore H. Strouse & Co., importers and commission merchants, 426 and 428 Market St., Philadelphia, have been appointed sole American agents for Messrs. Hubert, Arnold & Co., Lynn Mills, cotton spinners and doublers, Bolton, England. The above spinners make a specialty of strong lace curtain, fine warp, mercerizing and thread yarns and manufacturing yarns of all descriptions in numbers up to 200's single and ply. The high qualities of their yarns have been attested by some of the manufacturers who have recently placed trial orders. Any inquiries from the trade regarding prices and samples will receive prompt attention.

Fancy Colors on Cotton Yarns.

Last October the firm of W. M. Drexler & Co. started in business at Worth and Granite Sts., Frankford, Philadelphia, as dyers of cotton yarn. Mr. Drexler has had great practical experience. The firm is making a specialty of fancy colors, as well as turkey red and fast blacks. They have already a good number of customers who appreciate good work at a reasonable figure, and can take on a few more regular customers and job work.

Electric Power.

Bullock Electric Manufacturing Co., of Cincinnati, O., announce that their claim to the exclusive rights under the Ward Leonard patents to install the Multiple Voltage System of electric drive for operating machines is sustained by the courts. It is claimed this system provides the only successful means of operating and controlling motors driving machinery which requires variable speeds.

The Cold Spring Bleachery.

This establishment was started with the idea that there was a field for a bleaching and finishing works to pay special attention to fine cotton goods, such as lawns, organdies, mercerized goods and other fancies. The location at Yardley, Pa., was chosen because of its splendid water supply and good freight facilities. It is conveniently located on the Reading Road, near Philadelphia. The president of the company is Theodore C. Search and Oscar W. White is treasurer. Both are men thoroughly familiar with textile requirements and with wide acquaintance among manufacturers. With these officers, customers have every assurance that their relations with the Cold Spring Bleachery will be satisfactory, both as to character of work and business dealings.

Unique New Year's Souvenir.

Messrs. Knoll & Althouse, 917-929 Muhlenberg St., Reading, Pa. is a wide awake firm, and keeps up to the times, not only in the technical part of dyeing, bleaching and printing on hosiery, but in the general conduct of its business, and when it secures a new customer by its enterprising business methods, it makes it a point to hold him by the first-class way in which it handles his work. To show their appreciation to their many patrons thev have recently mailed a souvenir fountain pen of superior quality accompanied by these original verses:

The pen is mightier than the sword,
'Twill mend or sever friendship's cord
And do ten thousand other things;
But what we want this pen to do,
Is mightily to impress on you,
That we are dyers; yes, printers, bleachers too.
For favors past our thanks it brings,
For future ones it gently pleads,
And for us all our patrons greets
With Christmas cheer and glad New Year.

No Harsh Feeling to Goods.

The Mankato Knitting Mills of Mankato, Minn., derive their water supply from an artesian well, and had much difficulty with hard water, both in boilers and in processes of manufacture, particularly in the dyeing and finishing. Having heard of the Kennicott water softener system being used with great success in other branches of manufacture, they decided to give it a trial in their plant, with the result that the benefits are even more than they had expected, the goods coming out soft and entirely free from harsh feeling, while the colors are more even and require less dyestuff and are fast. The Kennicott Water Softener Co., 77 Jackson Boulevard, Chicago, Ill., do a very large business in this line with railroads and in various lines of industry. They are conservative in their claims and state frankly that there are some few impurities in water that they are unable to remove, but in the great majority of cases are most successful. An analysis determines the proposition, and

then they are ready to make a definite statement as to what they can do, and guarantee results before getting their pay. They analyze a sample of the water supply without expense to manufacturers.

Change of Address.

The American Vulcanized Fibre Co., sole proprietors and manufacturers of the well-known Laminar cans, boxes, etc., the Sullivan seamless Manila fibre roving can, and the walrus fibre cans and boxes, have removed their office from their factories at Cambridge to 12 Pearl St., Boston. Telephone, Main 3843. All communications for the company should hereafter be sent to this address.

A Magnanimous Gift.

The Klauder-Weldon Dyeing Machine Co. of Amsterdam, N. Y., who are builders of machinery for dyeing, bleaching and mercerizing have recently contributed a fine equipment of their machines to the Lowell Textile School, Lowell, Mass., Philadelphia Textile School, Philadelphia, Pa., and the Textile School at Atlanta, Ga. The equipment to each school consisted of a twenty-pound skein-dyeing machine for silk, cotton, wool and worsted, and a twenty-pound raw stock machine for wool, cotton and waste. These machines have a great reputation in the trade, and will be a source of much valuable instruction to the many students attending these three textile schools. The schools are to be congratulated on their good fortune.

Patent Decision.

The Draper Co., Hopedale, Mass., are sending to their customers a copy of the decision just handed down by Judge Aldrich in the Massachusetts Circuit Court in the suit of Henry M. Hewes v. Draper Company. The complainant contended that their Northrop loom shuttles infringed a patent of J. H. Nason, of which he held possession. The bill was dismissed with costs.

We also note by the Charlotte Observer that Judge Boyd of the U. S. District Court at Statesville, N. C., has signed a decree in favor of the Sawyer Spindle Co. in their suit against the Lily Mills of Spray, N. C., for using spindles imported from England and held to infringe the patent No. 412,996 granted G. E. Taft and H. F. Woodmancy. This patent covers the well known Whitin type of spindle.

Water Gas for Singeing Machines.

The Sayles Bleachery has recently installed the Loomis-Pettibone system of gas apparatus for use in connection with singeing machines. It is claimed that water gas made by this system gives better results than the old methods. There has been recently a consolidation of several important interests connected with gas apparatus, gas engines and machinery, and a company has been formed known as the Power & Mining Machinery Co. They have a very large plant in Milwaukee, and the Eastern offices are at 52 William St., New York. They also build the Crossly gas engine, of which there are over 50,000 in operation.

Removal.

H. A. Metz & Co., dealers in dyestuffs and chemicals, whose main office is in New York, announce the removal of their Philadelphia branch office to 104 Chestnut Street.

Old Firm of Patent Solicitors Removes to New Quarters.

Crosby & Gregory, long located on School St., and one of the oldest patent soliciting houses in Boston, will be found after Jan. 1 in the Old South Building, immediately at the foot of School St., where they will occupy a suite of offices on the sixth floor. This firm has been closely identified with many of the great industrial enterprises and business successes based on patents that have been prominent during the half-century since the house was established, and has for years done the patent business for a number of large textile machinery builders.

The firm came into being in the year 1854, when the late Joseph B. Crosby began business on State St. Mr. Crosby soon after establishing himself in business moved to School St. and associated with him Mr. Gould, under the style of Crosby & Gould, and so continued till the death of Mr. Gould in 1874. Mr. George W. Gregory was at that time a principal examiner in the patent office at Washington, a position he had occupied for 10 years. At the solicitation of Mr. Crosby he resigned and joined Mr. Crosby in the business, the firm name becoming Crosby & Gregory, and has thus remained to the present day, though for many years past Mr. Crosby has had no connection with the firm.

About eight years ago John C. Edwards, then of Washington, D. C., was admitted to the firm. Mr. Edwards is a graduate of the Polytechnic School of Troy, N. Y., is a member of the bar, and for some years before joining the firm had charge of the Washington office.

The firm has a large corps of competent assistants who, in addition to their technical and legal training, have had years of experience in the examining force of the United States patent office. The firm is well equipped to conduct and prosecute applications for patents in any line, both in the United States and all other countries, and also to conduct patent litigation in all its branches. Their experience in textile work has been very extensive and they have always paid special attention to this branch.

Pennsylvania, Fleetwood. Kutz Bros., proprietors Clover Leaf Knitting Mill, have been running on 144 needle half hose since starting in business. They have now put in 6 new machines for the purpose of manufacturing 200 needle goods, which is meeting with a good sale. Business with them is good.

Recent Textile Patents.

BOBBIN HOLDER. 745,528. Harry W. Scatchard, Bridgton, Me.

BILLIARD CLOTH. 741,598. John Turner, Boston, Mass., assignor of one-half to Goodman-Leavitt-Yatter Co., Boston, Mass.

CLOTH FOLDING DEVICE. 740,581. Amelia Maxson, New York, N. Y.
fred R. Whitehead and William E. Layland, Leeds, England.

CARD CLOTHING. 745,974. Michael E. Sullivan, New Bedford, Mass.

CARDING MACHINE Feed Roll Attachment. 746,322. Michael H. Gallagher, Spencer, Mass., assignor to himself and Allan L. Taft, Spencer, Mass.

CARPET FABRIC. Woven. 746,298. Thomas Daffin, Philadelphia, Pa., assignor of one-half to Robert T. Hogg, Frankford, Pa.

CLOTH STEAMING Apparatus. 745,321. Francis I. Burgher, Stapleton, N. Y.

DYEING CARD Slivers. Apparatus for. 746,863. Diego Mattei, Genoa, Italy.

DYEING TEXTILE Fibre Blue. 746,784. Rene Bohn, Mannheim, Germany, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany.

FABRIC MILLING Machine. 746,912. James D. Asquith, Leeds, England.

LOOM WARP STOP MOTION. 741,577. John F. Dustin, Fitchburg, Mass., assignor to himself and the Parkhill Mfg. Co., Fitchburg, Mass.

LOOM WARP STOP MOTION. 741,951. William H. Baker, Central Falls, R. I., and Frederic E. Kip, Montclair, N. J., assignors to Kip-Armstrong Company.

LOOM FOR WEAVING NARROW WEAR FABRICS. Needle. 741,279. Eppa H. Ryon, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass.

LOOM FOR WEAVING PATTERN FABRICS. 741,366. Heinrich Panitschek and Johann Ahorn, Sarejevo, Austria.

LOOM FOR WEAVING SHORT WEFTS. 741,749. William Wattie, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass.

LOOM WEFT HANDLING MECHANISM. 740,276. Azel C. Hough, Worcester, Mass.

LOOM SHUTTLE OPERATING MECHANISM. 740,362. Azel C. Hough, Worcester, Mass.

LOOM BOBBIN Take-Up. 747,307. Nathaniel H. Merriam and Edward H. Sawyer, Lexington, Mass.

LOOMS. Electric Feeler for Weft Replenishing. 747,146. Richard Cowell and Albert White, Lowell, Mass.

LOOM FORK-GRID Clearer. 745,473. Bingham F. S. Austin, Gastonia, N. C., assignor to Draper Co., Hopedale, Mass.

LOOM. Filling Replenishing. 745,363. Alida M. Marcoux, Milford, Mass., assignor to Draper Co., Hopedale, Mass.

LOOM FILLING Stop Motion. 746,058. William A. Fowler, Salisbury, N. C., assignor to Draper Co., Hopedale, Mass.

LOOM LET OFF Mechanism. 747,273. Henry Tomlinson and James J. Muldowney, Lawrence, Mass., assignors to Draper Co., Hopedale, Mass.

MORDANTING WOOL. 735,599. Hermann Schrader, Honningen, Germany.

PILE FABRIC. Woven. 747,588. James Buckler, Worcester, Mass.

PRINTING MACHINE. Hosiery. 747,355. Robert Baird, West Orange, N. J.

PRINTING YARNS or Threads for Woven Carpet Fabrics. 747,306. William B. Keefer, Philadelphia, Pa., assignor of one-half to Frederick William Doerr and John Phillip Doerr, Philadelphia, Pa.

RAG DUSTING Machine. 745,743. Eugene T. S. Thayer, West Springfield, Mass.

SPINNING FRAME. 745,897. Alfred Parker, Methuen, Mass., assignor to Francis A. Hall and Percy Hall, Methuen, Mass.

SPINNING FRAME Yarn Controller and Separator. 745,466. Joseph E. Tichon and Henry S. Foster, New Bedford, Mass., said Tichon assignor to Harry A. Severson, Milwaukee, Wis.

SPINNING MACHINE Flyer. 745,400. Fred Spence, Sanford, Me., assignor of one-half to Goodall Worsted Co., Sanford, Me.

SPOOL OR Bobbin Shield or Hoop. 745,948. Walter B. Wilson, Barnsley, England.

SPOOLER. 744,797. Alonzo E. Rhoades, Hopedale, Mass., assignor to Draper Co., Hopedale, Mass.

SPINDLE BOBBIN RETAINING MEANS, ROTATABLE. 734,922. Clarence E. Metcalf, Hopedale, Mass., assignor to Draper Co., Hopedale, Mass.

SPINNING MULE ANTISNARLING MOTION. 735,996. Timothy McAuliffe, Lawrence, Mass.

SPINNING SPINDLE. 736,544. James C. Potter, Pawtucket, R. I., assignor to American Spindle Co., Pawtucket, R. I.

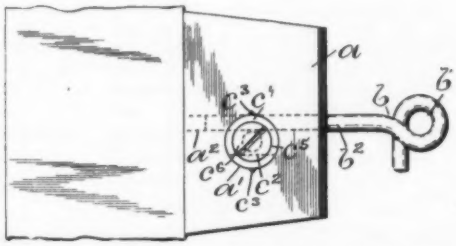
SPINNING SPINDLE BOLSTER AND STEP COMBINED. 736,491. John Caldwell, Edgewood, R. I., assignor to Rodolph F. Morse, Providence, R. I.

SPINNING AND DOUBLING Apparatus. 742,555. Thomas Ashworth, Urmston, near Manchester, England, assignor of one-half to Joseph Shaw, Manchester, England.

SPINNING FRAMES. Guide Eye for. 740,611. William O. Aldrich, Whitinsville, Mass., assignor to the Whitin Machine Works, Whitinsville, Mass.

The objects of this invention are to simplify the construction and operation of adjustably securing

Fig. 1.



guide-eyes to the finger-boards of spinning-frames or similar machines. It consists in the peculiar and novel construction of the guide-eye and a clamping mechanism in the finger-board to adjustably secure the guide-eye to the finger-board.

Figure 1 is a plan view looking at the under side of a finger-board, showing the improved guide-eye and clamping mechanism for adjustably securing the guide-eye to the finger-board.

THREAD GUIDE for Spooling Machines. 741,666. Lewis T. Houghton, Worcester, Mass.

This invention relates to that class of thread-guides which are primarily designed for use in connection with spooling-machines. The especial object of this invention is to provide a strong, simple, efficient and inexpensive thread-guide for spooling-machines which can be made up to a considerable extent of sheet metal, and in which the parts are not only constructed so that they may be adjusted to vary the width of the slot between the

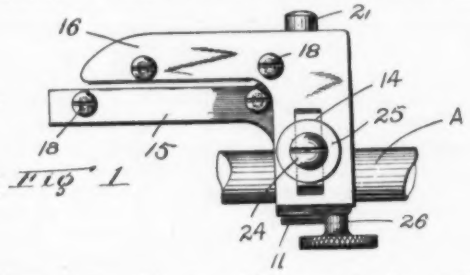


Fig. 1

jaws of the guide, but which may also be readily and quickly adjusted to vary the position of the jaws with respect to the rail on which the thread-guide is mounted and which is also preferably provided with a turner-bar or guide for introducing the threads parallel with the face of the thread-guide jaws.

To these ends this invention consists of the thread-guide for spooling-machines and of the combinations of parts therein.

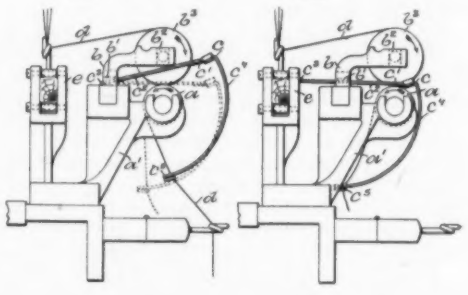
Figure 1 is a rear view of a thread-guide for spooling-machines constructed according to this invention.

TWISTING MACHINES. Stop Motion for. 740,638. George I. Fiske, Providence, R. I., assignor to Howard and Bullough American Machine Co., Ltd., Pawtucket, R. I.

This invention consists in a peculiar and novel construction of the stop attachment and a means for attaching it to the cap-bar of a twisting-machine, whereby the attachment is independent of the operative parts of the machine when in its inoperative position, is operated by the breaking of the thread, and carried into its operative position by friction on the bottom roll.

Figure 1 represents a side elevation of a roller-stand, showing this stop-motion with the stop at-

Fig. 1. Fig. 2.



tachment in its inoperative position; the position it would assume after the thread breaks is shown in broken lines. Fig. 2 is a view similar to Fig. 1, showing the stop attachment carried in by friction on the bottom roll, bringing the tongue of the attachment between the rolls to raise the top roll out of engagement with the bottom roll and stop the feed of the thread.

UNDERCLOTHING. 746,349. Cecelia M. Mackenzie and Jessie E. Mackenzie, London, England.

UNDERGARMENT. 746,060. George A. Frisbie, Utica, N. Y.

WARPING REEL. 744,293. Richard J. Chowen and William Hartly, Peterborough, Canada.

WARPING REEL. 744,294. Richard J. Chowen and W. Hartly, Peterborough, Canada.

WARP LET-OFF Motion. 744,440. William W. Uhlinger, Paterson, N. J.

WARP STOP Motion Apparatus. 743,748. Herbert W. Owen, Dover, N. H. John T. Kirk, Pawtucket, R. I., assignors to Draper Co., Hopedale, Mass.

WOVEN FABRIC. 742,468. Nathaniel H. Merriam, Lexington, Mass.

WINDING MACHINE. Thread. 747,404. George W. Foster, Westfield, Mass.

YARN CHAIN Unwrapping Mechanism. 745,993. William Baxter, Fitchburg, Mass., assignor to Draper Co., Hopedale, Mass.

YARNS OR Threads from Short Fibres. Apparatus for Manufacturing. 747,465. Max Muller, Altdamm, Germany.

C. E. RILEY & CO.

65 Franklin Street, BOSTON, MASS.

BUILDERS AND IMPORTERS OF

COTTON WOOLEN WORSTED

MACHINERY

AGENTS FOR

HOWARD & BULLOUGH, Ltd., Picking, Revolving Flat Cards, Electric and Mechanical Stop Motion Drawing, Slubbing, Intermediate, Roving and Jack Frames, Spinning and Twisting, New Patent Self-Acting Mules, Spoolers, Warpers and Slashers,

RICHARD THRELFALL, Patent Fine Spinning Mules, 100s to 350s.

HALL & STELLS, Worsted Machinery.

CONSTRUCTION DE MACHINES, Ci-Devant, F. J. Grun. French Worsted Machinery.

HOYLE & PRESTON, Noble Combs, Back Washing Machines, etc.

JAMES TOMLINSON, Ltd., Cotton Waste Machinery; Engine Cleaning and Hard Waste Breaking Machines, etc.

JOHN HAIGH & SONS, Ltd., Woolen and Worsted Cards, Fearnoughts, Feeds, etc,

THOS. BROADBENT & SONS, Hydro Extractors, Patent Suspended Steam and Electrical Driven, Machines kept in stock in Boston.

JOHN WHITELEY & SONS, Card Clothing for Cotton; Tempered Steel, Plough Ground, Needle Pointed.

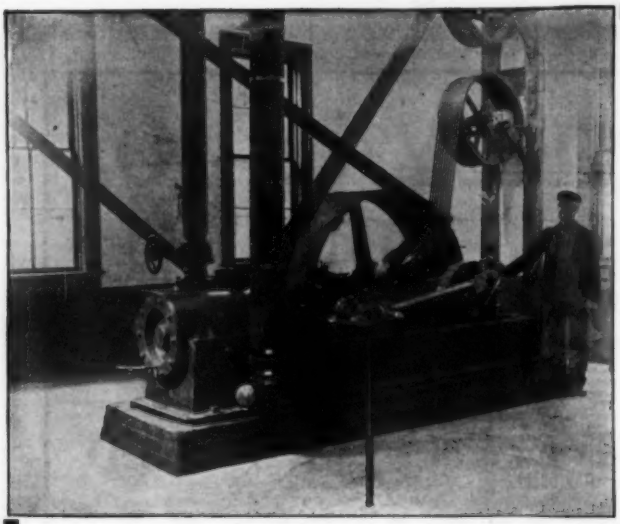
L. M. TETLOW & SONS, Card Clothing for Woolen and Worsted; Tempered Steel, Needle Pointed.

J. GREENHALGH & SONS, Cotton Waste Willows, for Fly, Strips, Picker Droppings, etc.

DRONSFIELD BROS., Ltd., Grinding Rolls and Emery Filleting. Stock kept in Boston.

SPINDLES, FLYERS, FLUTED ROLLS, ETC.

DIRECT .. .. IMPORTERS OF **EGYPTIAN COTTON**



CLING SURFACE MFG. CO. WYANDOTTE, MICH.

I am glad to advise you regarding results of CLING-SURFACE especially in our rope drives.

We have two nine rope drives from 100 h. p. engine, inch rope used. One drive 92 ft. centers, the other 70 ft. centers.

We have used CLING-SURFACE over nearly a year and its result has been to penetrate into the rope, keeping it very pliable by surrounding each internal fibre with a lubricant and this has also prevented internal chafing of the fibres. It has protected the rope from influence of damp weather and has filled up the uneven outside surface until we have perfectly round cables, touching the pulleys at all points. Slipping is entirely prevented.

J. H. BISHOP CO., GILBERT GIRARDIN, Ch. Eng.
(Robes and Blankets.)

Cling-Surface for Rope Drives

There is nothing better than CLING-SURFACE for ropes.

It preserves them, keeps them pliable, elastic, waterproof and weather-proof.

And best, it penetrates in around every fibre, preventing the internal friction and chafing so severe on ropes.

It stops slipping and permits all ropes to run easy.

You can easily double a rope's life.

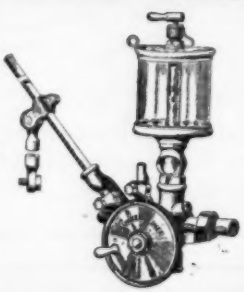
Order a can and try it. We guarantee every pound.

Cling-Surface Mfg. Co

199-205 Virginia Street
BUFFALO, N. Y.

Boston, 170 Summer St
New York; 39 Cortlandt St
Philadelphia, The Bourse

LUNKENHEIMER



A MECHANICAL OIL PUMP to be a success should embody the following principles: It should be simple, practical, well made, durable, reliable, absolutely positive, and devoid of clap-trap mechanism. The **Lunkenheimer Mechanical Oil Pump** possesses all the above features. It touches the spot and puts the oil where it is needed. Every pump rigidly tested, inspected and warranted to satisfy. Specify "Lunkenheimer" make and order from your dealer. Write for catalog of brass and iron Valves, Injectors, Whistles, Lubricators, Steam Traps, Oil and Grease Cups, etc., all of superior quality.

THE LUNKENHEIMER CO.
Sole Makers.

Branches: New York, 96 Cortlandt St. London, 35 Great Dover St. CINCINNATI, O. U.S.A.

MECHANICAL OIL PUMP

Buyers' Index.

The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisement. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in these classified lists such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources.

Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

Accident Cabinets.
Putnam & Co.

Air Moistening System.
American Moistening Co.

Architects and Mill Engineers.
Ballinger & Perrott.
Dean & Main.
Ferguson, John W.
Gray, Arthur F.
Patterson, H. C.
Stearns & Castor.
Suck, Adolph.

Asphalt and Concrete.
Warren Bros. Co.

Automatic Feeds for Cotton and Wool.
American Drying Machinery Co.
Harwood, Geo. S. & Son.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schofield, Wm. Co.
Smith, Jas., Woolen Machinery Co.
Woonsocket Machine & Press Co.

Automatic Shuttle and Loom Attachments.
Asaia Co.
Stafford, G. W. Mfg. Co.

Balling Machine.
North Chelmsford Machine Co.
Torrance Mfg. Co.

Bandings.
——See under Yarns.

Baskets.
Ballou Basket Works.
Lane, W. T. & Bro.
Morris & Co.

Belting.
Boston Belting Co.
Dodge Mfg. Co.
Jeffrey Manufacturing Co.
Main Belting Co.
Shultz Belting Co.
Smith, Jas. Woolen Mach. Co.
——See also Mill Supplies.

Belt Cutters.
Luther, C. A. & Co.

Belt Dressing.
Cling Surface Mfg. Co.
Dixon, Jos. Crucible Co.
Stephenson Mfg. Co.

Belt Lacing Machines.
Diamond Drill & Machinery Co.

Bindings.
——See Tapes and Braids.

Bleaching Kiers.
Allen, Wm. & Sons Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros. Co. (Somerville Mchn. Works).

Bleaching Materials.
Bosson & Lane.
Roessler & Hasslacher Chemical Co.

Block Cutting for Printing.
Atlas Copper Stamp Works.

Blowers and Blower Systems.
American Blower Co.
Barney Ventilating Fan Works.
Boston Blower Co.
Buffalo Forge Co.
Hartford Blower Co.
Mass. Fan Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F. Co.

Bobbins, Spools, Shuttles, Etc.
Leigh, Evan A.
Murray, Chas. O.
New England Shuttle Co.
Sweet & Doyle.
Tebbets, E. L. & Co.

Boilers.
——See Steam Boilers.

Boiler Setting.
Harris, J. B.

Boxes, Cloth Boards, Etc.
Pearson, J. T.

Boxes (Paper).
——See Paper Boxes.

Braiding Machinery.
New England Butt Co.
Textile Machine Works.

Braids.
——See Tapes, Braids and Edgings.

Brass (Perforated).
——See under Perforated Metal.

Brushes.
Felton, S. A. & Son Co.
Mason Brush Works.

Brushers.
——See Napping Machines.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith, Jas., Woolen Machinery Co.

Burlaps.
Stoddard, Haserick, Richards & Co.

Calico Printers' Machinery and Supplies.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros. Co. (Somerville Mchn. Works).
Butterworth, H. W. & Sons Co.
Taunton, New Bedford, Copper Co.
Textile Finishing Mchry. Co.
——See also Dyeing, Bleaching, Machinery, etc.

Canvas Baskets.
Ballou Basket Works.
Lane, W. T. & Bro.
Morris & Co.

Carbonizing.
Riverdale Woolen Co.

Carbonizing Machinery.
American Drying Machinery Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Smith, Jas. Woolen Machinery Co.

Card Clothing.
Ashworth, Elijah.
Leigh, Evan A.
Riley, C. E. & Co.
Smith, Jas., Woolen Machinery Co.
Stoddard, Haserick, Richards & Co.

Card Feeds.
——See Automatic Feeds.

Card Grinding Machinery.
Entwistle, T. C., Co.
Leigh, Evan A.
Philadelphia Textile Machinery Co.
Riley, C. E. & Co.
Smith, Jas. Woolen Machinery Co.
Stoddard, Haserick, Richards & Co.

Cardera' Tools.
Brown, W. H.

Carpet Machinery.
Altemus, Jacob K.
Curtis & Marble Machine Co.
Howard Foundry & Mch. Wks.
Philadelphia Textile Machinery Co.
Smith, Jas., Woolen Machinery Co.

Castings.
Livermore, Homer F.
Schofield, Wm. Co.

Chemicals.
Fiedt, Geo. D. & Co.
Roessler & Hasslacher Chemical Co.
Solvay Process Co.

Cling Surface.
Cling Surface Mfg. Co.

Clocks.
Howard, E., Clock Co.
Riggs & Brothers.

Cloth Boards.
Chaffee Bros.
Pearson, J. T.

Cloth Stretchers.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros. Co. (Somerville Mchn. Works).
Luther, C. A. & Co.

Clutches.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.
Reeves Pulley Co.
Smith, Jas. Woolen Machinery Co.
Speed Changing Pulley Co.

Coal.
Big Brushy Coal & Coke Co.

Combs (Wool and Cotton).
Crabb, William & Co.
Hood, R. H.
Leigh, Evan A.
Philadelphia Textile Machinery Co.
Riley, C. E. & Co.
Smith, Jas., Woolen Machinery Co.
Stoddard, Haserick, Richards & Co.
Townsend, Thomas.

Combustion System.
Harris, J. B.

Commission Agents.
English-Greene Co.

Conveyors, Pneumatic.
——See Blowers & Blower Systems.

Conveying Machinery and Chains.
Jeffrey Manufacturing Co.

Cop Tubes.
——See Paper Tubes.

Copper (Perforated).
——See under Perforated Metal.

Copper Print Rollers.
Taunton, New Bedford Copper Co.

Coppersmiths.
Beer, Paul.
Badger, E. B. & Sons Co.

Copper Work for Dyers.
Butterworth, H. W. & Sons Co.
Textile Finishing Machinery Co.

Cotton.
Blaisdell, Jr., Co., S.
Charles, W. B.
Riley, C. E. & Co.
Stoddard, Haserick, Richards Co.

Cotton Elevators.
Buffalo Forge Co.

Cotton Machinery.
Altemus, Jacob K.
Atherton, A. T., Machine Co.
American Drying Machinery Co.
Ashworth, Elijah.
Barker, James.
Brigham, Arthur A.
Butterworth, H. W. & Sons Co.
Crompton & Knowles Loom Works.
Crompton-Thayer Loom Co.
Cohoes Foundry & Machine Co.
Curtis & Marble Machine Co.
Draper Company.
Easton-Burnham Co.
Elliott & Hall.
Entwistle, T. C., Co.
Firth, William, Co.
Houghton, L. T.
Howard & Bullough American Mach. Co.
Kilburn, Lincoln & Co.
Kitson Machine Co.
Leigh, Evan A.
Lever, Oswald.
Lowe, Stephen C.
Lowell Machine Shop.
Mason Machine Works.
Metallic Drawing Roll Co., The.
North Chelmsford Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Riley, C. E. & Co.
Saco & Pettee Machine Shops.
Schofield, Geo. L.
Smith, Jas., Woolen Machinery Co.
Stoddard, Haserick, Richards & Co.
Whitin Machine Works.
Woonsocket Machine & Press Co.

Cotton Openers and Lappers.
Atherton, A. T., Machine Co.
Howard & Bullough American Mach. Co.
Kitson Machine Co.
Leigh, Evan A.
Riley, C. E. & Co.
Stoddard, Haserick, Richards & Co.

Cotton Softeners.
Bosson & Lane.
Loos & Dilworth.

Cotton Waste.
Becker, C. W.
Blaisdell, Jr., Co., S.
Charles, W. B.

Crayons.
Dixon, Jos. Crucible Co.
Lowell Crayon Co.

Cutters for Knit Fabrics.
Kennedy, Thos. (Cutters, etc.).
Universal Cutter Co.

Alphabetical Advertising Index, with page numbers, follows this list.

Dating and Time Stamps.
Riggs & Brothers.

Dextrine.
Stein, Hirsh & Co.

Dobbies.
Crompton & Knowles Loom Works.
Crompton-Thayer Loom Co.
Stafford, George W. Co., The.

Drawing Rolls.
Hood, R. H.
Metallic Drawing Roll Co., The.

Dryers.
American Blower Co.
American Drying Machinery Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch, Arthur, Arlington Machine Works.
Birch Bros. Co. (Somerville Mchn. Works).
Boston Blower Co.
Buffalo Forge Co.
Butterworth, H. W. & Sons Co.
Hartford Blower Co.
Hunter, Jas., Machine Co.
Kenyon, D. R. & Son.
Mass. Fan Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Smith, Jas., Woolen Machinery Co.
Somerville Mach. Wks.
Sturtevant, B. F. Co.
Textile Finishing Machinery Co.

Drying Boards.
Bull, William C.
Pearson, J. T.

Dusters.
——See Wool and Waste Dusters.

Dust Collectors.
Allington & Curtis Mfg. Co.
Hartford Blower Co.
Philadelphia Drying Machinery Co.

Dyers, Bleachers and Finishers.
Blissville Mills.
Brophy's, T., Sons.
Cold Spring Dyeing & Bleaching Co.
Cooper Mercerizing Co.
Cranston Worsted Mills (yarns).
Davidson, J. F.
Drexler, W. M. & Co.
Firth & Foster Co.
Greenwood, R. & Bault.
Home Bleach & Dye Works.
Ingrahamville Dye Works.
Keystone Fast Black Dye Works.
Lorimers, The Wm. H. & Sons Co.
Maryland Bleach & Dye Works.
Moit Bros. (Indigo Blue).
Pawtucket Dyeing & Bleaching Co.
Pennypack Yarn Finishing Co.
Providence Mills Mfg. Co.
Rowland, Samuel.
Whittier Mills.
Wild, Chas. E.

Dyeing, Drying, Bleaching and Finishing Machinery.
American Blower Co.
American Drying Machinery Co.
American Yarn Dyeing Machine Co.
Antisdel, E. M. (Knit Dryer).
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch, Arthur, Arlington Machine Works.
Birch Bros. Co. (Somerville Mchn. Works).
Buffalo Forge Co.
Butterworth, H. W. & Sons Co.
Curtis & Marble Machine Co.
Dubois, A. N.
Empire Laundry Machinery Co.
Entwistle, T. C., Co.
Fabric Measuring & Packaging Co.
Fairmount Machine Co.
Gessner, David.
Hartford Blower Co.
Heathcote, John & Son.
Hopkins Machine Works.
Howard Foundry & Mch. Wks.
Kenyon, D. R. & Son.
Leigh, Evan A.
Leyland, Thos. & Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Rothe, O. & P., Man. & Supply Co., Ltd.
Smith, Drum & Co.
Smith, Jas., Woolen Machinery Co.
Somerville Machine W'ks, Birch Bros. Co.
Sturtevant, B. F. Co. (Drying).
Textile Finishing Machinery Co.
Vacuum Dyeing Machine Co.
Wing, L. J. Mfg. Co.

Dye House Cans.
Hill, James, Mfg. Co.

Dye Sticks.
Bailey, Frank.
Haedrich, E. M.

Dyestuffs and Chemicals.
Atteaux, F. E. & Co.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Dillon & Co.
Dubois, A. N.
Farbenfabriken of Elberfeld Co.
Ford, J. B., Co.
Fortner, L. B.
Geigy Aniline & Extract Co.
Geisenheimer & Co.
Holliday & Sons, Ltd.
Johnson, Chas. A. & Co.
Kuttroff, Pickhardt & Co.
Leyland, Thos. & Co.
Metz, H. A. & Co.
Moit Bros. (Indigo Blue).
N. Y. & Boston Dyewood Co.
Philadelphia Drying Machinery Co.
Roessler & Hasslacher Chemical Co.
Selling Co., The.
Solvay Process Co.
Sykes & Street.
Thayer, Ed. M.
Vila, H. E.
Wild, Charles E.

Dynamos and Motors.
General Electric Co.
Sturtevant Co., B. F.

Edgings.
——See Tapes, Braids and Edgings.

Electrical Construction.
General Electric Co.

Electric Fans.
American Blower Co.
Buffalo Forge Co.
General Electric Co.
Hartford Blower Co.
Mass. Fan Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant Co., B. F.

Electric Lamps.
Sterling Electric Mfg. Co.

Electric Lighting.
General Electric Co.

Electric Motors.
General Electric Co.
Sturtevant Co., B. F.

Electrotyping and Printing.
Smith Bros.
Whitcomb, H. C. & Co.

Elevators.
Cohoes Foundry & Machine Co.
Howard Foundry & Mch. Wks.
Jeffrey Manufacturing Co.
Morse, Williams & Co.
Salem Elevator Works.

Employers Time Recorders.
Riggs & Brothers.

Exhaust Heads.
Burt Manufacturing Co.
Hartford Blower Co.
Pittsburg Gage & Supply Co.
Sturtevant, B. F., Co.

Fans—Exhaust and Ventilating.
——See Ventilating Apparatus.

Feed Water Heaters.
Green Fuel Economizer Co.
Scaife, W. B. & Sons.

Feed Water Pumps.
Goulds Mfg. Co.
Pittsburgh Gage & Supply Co.
Scaife, W. B. & Sons.

Feeds.
——See Automatic Feeds.

Filters.
Norwood Engineering Co.
Phila. Water Purification Co., The.
Pittsburgh Gage & Supply Co.
Scaife, W. B. & Sons.

Finishing Machinery.
——See Dyeing, Drying, Bleaching and Finishing.

Fire Brick.
Borgner, Cyrus, Co.

Fire Extinguishers.
Badger, E. B. & Sons Co.

Fire Hose.
Boston Belting Co.

Fire Hydrants.
Norwood Engineering Co.

Fire Proof Doors and Windows.
Lupton's, David, Sons Co.

Flax, Tow, Hemp and Jute Machinery.
Lawson, Samuel & Sons.
Leigh, Evan A.
Moeller & Littauer.

Fluted Rolls.
Baker Machine Co.
Hood, R. H.
Leigh, Evan A.
Riley, C. E. & Co.
Thurston, A. G. & Son.

Flyers.
Baker Machine Co.
Leigh, Evan A.
Textile Machinery Co.

Forges.
Buffalo Forge Co.
Sturtevant Co., B. F.

Friction Clutches.
——See Clutches.

Friction Cones.
Evans, G. Frank.

Fuel Economizers.
Green Fuel Economizer Co.

Furnace for Boilers.
Harris, J. B.

Fulling Mills for Woolen Goods.
Hopkins Machine Works.
Hunt, Rodney, Machine Co.
Hunter, Jas., Machine Co.
Kenyon, D. R. & Son.

Garnetts.
Leigh, Evan A.
Philadelphia Textile Machinery Co.
Smith, Jas., Woolen Machinery Co.

Gas Engines.
Jones, Lewis.

Gas Exhausters.
Hartford Blower Co.
Sturtevant Co., B. F.

Gaskets (Rubber).
Boston Belting Co.

Gauges.
Crosby Steam Gage & Valve Co.
Lunkenheimer Co.
Pittsburgh Gage & Supply Co.
Standard Gauge Mfg. Co.
Walworth Manufacturing Co.

Gears.
Horsburgh & Scott.
New Process Raw Hide Co.

Gear Cutting Machine.
Whiton, The D. E., Co.

Generating Sets.
Buffalo Forge Co.
Sturtevant Co., B. F.

Heating.
——See Ventilating.

Heddles.
Smith, Jas., Woolen Machinery Co.
Stoddard, Haserick, Richards & Co.
Watson, L. S., Mfg. Co.

Hose.
Boston Belting Co.

Hosiery Boards.
Pearson, J. T.

Hosiery Labels.
Saranac Electrical Mfg. Co.

Hosiery (Winders).
Brigham, Arthur A.

Humidifying Apparatus.
American Air Moistening Co.

Hydro Extractors.
American Tool & Machine Co.
Brigham, Arthur A.
Empire Laundry Machinery Co.
Riley, C. E. & Co.
Stoddard, Haserick, Richards & Co.
Textile Finishing Machinery Co.

Injectors.
Lunkenheimer Co.

Ironing Machines for Knit Goods.
Empire Laundry Machinery Co.
Craw, J. W., Laundry Machinery Co.

Jacquard Cards.
Rogers Paper Mfg. Co.

Jacquards.
Halton's, Thomas, Sons.

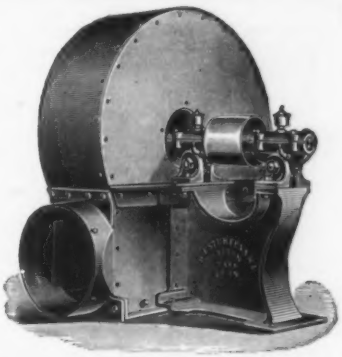
Knit Goods, Edgings, Trimmings, Etc.
Cathcart, John & Co.
Chapin, Geo. W.
Charles, W. B.
Cheney Bros.
Friedberger Mfg. Co.
Hepner & Horwitz.
Krout & Fite Mfg. Co.
Weimar Bros.

Alphabetical Advertising Index, with page numbers, follows this list.

Waste and Dust

from Hoppers, Pickers, Shearers, &c., can be absolutely removed by the positive action of a

STURTEVANT EXHAUST FAN



Maintains clean work rooms and avoids the annoyance and great expense of dust chimneys.

B. F. STURTEVANT CO.

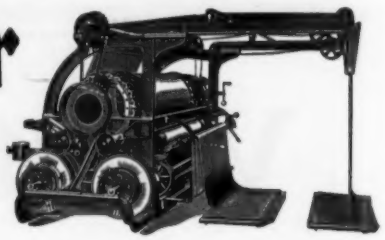
BOSTON, MASS.

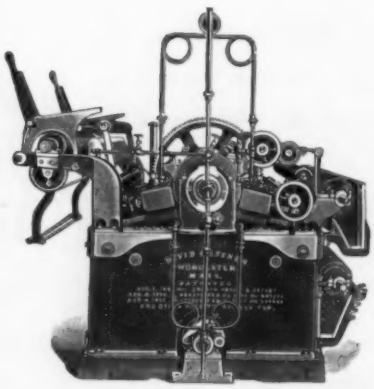
New York Chicago Philadelphia London

215

David Gessner

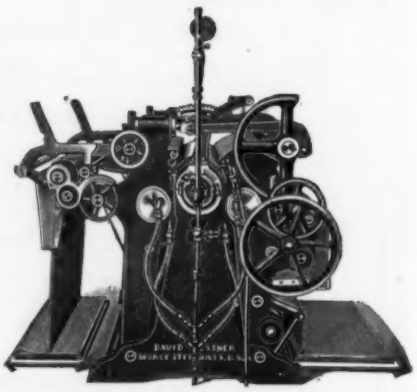
Worcester, Mass.





Latest Improved Cloth Finishing Machinery

Napping Machines and Presses a Specialty



Knit Goods Finishing Machines, Crochet, Etc.
Craw, J. W., Laundry Machinery Co.
Fink, John.
Merrow Machine Co., The.
Nye & Tredick Co.
Scott & Williams.
Willcox & Gibbs Sewing Machine Co.

Knitting Machine Cylinders.
Paxton & O'Neill.
Ruth Automatic Knitting Machine Co.
Stafford & Holt.
Stanton & Lewis.

Knitting Machinery.
American Knitting Machine Co.
Branson Machine Co.
Brinton, H. & Co.
Champion Machine Co.
Claes & Flentje.
Cooper, Chas.
Crane Mfg. Co.
Excelsior Knitting Machine Mfg. Co.
Hemphill Machine Co.
Irmscher & Co.
Jenckes, E., Mfg. Co.
Jones, Lewis.
Kennedy, Thos. (Cutters, etc.).
Keystone Knitting Machine Mfg. Co.
Lamb Knitting Mach. Mfg. Co.
Leighton Machine Co.
Lindley, Geo. W.
Mayo Knitting Machine & Needle Co.
McMichael, A.
McMichael & Wildman Mfg. Co.
Mueller, Arthur.
Muller, Julius.
National Automatic Knitter Co.
Nye & Tredick Co.
Paxton & O'Neill.
Pepper Machine Works.
Richter, Wolfgang.
Ruth Automatic Knitting Machine Co.
Schoebel, Walter
Scott & Williams.
Seyfert & Donner.
Stafford & Holt.
Standard Machine Co.
Taylor, James.
Tompkins Bros.
Walther, Otto.

Knitting Needles and Supplies.
Breedon's, Wm., Son.
Brinton, H. & Co.
Cooper, Chas.
Corey, Wm., Co.
Crane Mfg. Co.
Dodge Needle Co.
Freeman Bros.
Ives, Loyal T.
Keystone Knitting Machine Mfg. Co.
Lamb Knitting Machine Mfg. Co.
Manufacturers' Supplies Co.
Mayo Knitting Machine & Needle Co.
Page Needle Co.
Ruth Automatic Knitting Machine Co.
Treat, Orion.
Wardwell Needle Co.

Labeling Machine.
Saranac Electrical Mfg. Co.

Laboratory Outfits.
Feidt, Geo. D. & Co.

Leather Boards.
Rogers Paper Mfg. Co., Inc.

Looms.
Asala Co.
Crompton & Knowles Loom Works.
Crompton-Thayer Loom Co.
Draper Company.
Howard Fndy. & Mch. Wks. (For Wire).
Kilburn, Lincoln & Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
Smith, Jas., Woolen Machinery Co.
Stafford, George W. Co., The.
Stoddard, Haserick, Richards & Co.
Whitin Machine Works.

Loopers.
Hepworth, John W. & Co.
Leighton Machine Co.

Lubricators.
Borne, Scrymser Co.
Dixon, Jos., Crucible Co.
Lunkenheimer Co.
Pittsburgh Gage & Supply Co.

Lumpers.
Gerry, George & Son.
Schofield, Wm. Co.

Machinery Dealers.
Jefferson, Ed. & Bro.
Lamb, J. K., Textile Mach Co.
Pittsburgh Gage & Supply Co.
Schofield, Geo. L.
Taylor, James.

Machinists' Tools.
Dodge Mfg. Co.
Whiton, The D. E. Co.

Mails.
Walder, J.

Measuring and Folding Machines.
Curtis & Marble Machine Co.
Elliott & Hall.
Fabric Measuring & Packaging Co.

Mechanical Draft.
American Blower Co.
Boston Blower Co.
Buffalo Forge Co
Hartford Blower Co.
Mass. Fan Co.
Sturtevant, B. F., Co.

Mechanical Engineers.
American Blower Co.
Buffalo Forge Co.
Dean & Main.
Freeman, Walter K.
Hartford Blower Co.
Philadelphia Drying Machinery Co.
Sturtevant Co., B. F.
Suck, Adolph.

Mercantile Agency.
Dun, R. G. & Co.

Mercerizers.
Blissville Mills.
Cooper Mercerizing Co.
Greenwood & Bault, R.
Home Bleach & Dye Works.
Lorimer, Wm. H. Sons Co.
Pennypack Yarn Finishing Co.

Mercerizing Machinery.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros. Co. (Somerville Mchn. Works).
Butterworth, H. W. & Sons.
Smith, Drum & Co.
Textile Finishing Machinery Co.

Mill Architects.
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Mill Brushes.
See Brushes.

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The New

Crompton-Thayer Loom Company

.. MANUFACTURERS OF ..

FANCY LOOMS

For Weaving Worsted and Woolen, Fancy Cottons and Silk Fabrics.

Dobbies, Box Motions and Supplies.

WORKS AND OFFICES:

677 Cambridge Street, Worcester, Mass.

Mill Builders and Engineers.
Ferguson, John W.
Mill Sewing Machines.
—See Sewing Machines and Supplies.
Mill Supplies.
American Supply Co.
Bamford & Smith.
Barker, James.
Brigham, Arthur A.
Buckley's, Benj. Son, Gun Mill.
Crosby Steam Gage and Valve Co.
Dixon Lubricating Saddle Co.
Dodge Mfg. Co.
Easton-Burnham Co.
Hartford Blower Co.
Jefferson, Ed. & Bro.
Jeffrey Manufacturing Co.
Johnson Novelty & Mill Supply Co.
Lane, W. T. & Bro.
Leigh, Evan A.
Main Belting Co.
Morris & Co.
Murphy, E. W. & Co.
Philadelphia Drying Machinery Co.
Pittsburgh Gage & Supply Co.
Putnam & Co.
Riley, C. E. & Co.
Shaw, Victor, Ring Traveler Co.
Smith, Jas., Woolen Machinery Co.
Stephenson Mfg. Co.
Stoddard, Haserick, Richards & Co.
Sweet & Doyle.
Thurston, A. G. & Son.
Tucker, W. W. & C. F.
Ward & Vandegrift.
Walworth Manufacturing Co.
Watson, L. S., Mfg. Co.
Mill Trucks.
City Forge & Iron Works.
Towsley, John T. Mfg. Co.
Napping Machinery.
American Napping Machine Co.
Borchers, Richard C. & Co.
Columbia Napping Machine Co.
Curtis & Marble Machine Co.
Gessner, David.
Jones, Lewis.
Leigh, Evan A.
Parks & Woolsen Machinery Co.
Woonsocket Napping Machinery Co.
Noils (Silk).
Malcolm Mills Co.
Ryle, Wm. & Co.
Numbering Machines.
Force, Wm. A., & Co.
Oil Cups.
Lunkenheimer Co.
Pittsburgh Gage & Supply Co.
Walworth Manufacturing Co.
Oil Filters.
Burt Manufacturing Co.
Pittsburgh Gage & Supply Co.
Oils.
Borne, Scrymser Co.
Loos & Dilworth.
Murphy, E. W. & Co.
New York & New Jersey Lubricant Co.
Stephenson Mfg. Co.
Oilless Bearings.
Arguto Oilless Bearing Co.
Oil Hole Covers.
Tucker, W. W. & C. F.
Overhead Tracks.
Cohoes Foundry & Machine Co.
Putnam & Co.
Overseaming Machines.
Champion Machine Co.
Merrow Machine Co.
Willcox & Gibbs Sewing Machine Co.
Oxidizing Machinery.
Dubois, A. N.
Packing.
Boston Belting Co.
Paint.
Standard Paint Co.
Pantagraphs for Mill Engraving.
Johnson, C. A., & Co.
Paper Tubes.
Sayford Paper Specialty Co.
Patent Solicitors.
Crosby & Gregory.
Howson & Howson.
Siggers & Siggers.
Straley, Hasbrouck & Schloeder.
Perforated Metals.
Allis-Chalmers Co.
Beckley, A. J. & Co.
Peroxide of Sodium.
Roessler & Hasslacher Chemical Co.
Pipes and Fittings.
Pancoast, Henry B. & Co.
Walworth Manufacturing Co.
Pneumatic Conveying.
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Power Transmission Machinery.
Allis-Chalmers Co.
American Drying Machinery Co.
Cohoes Foundry & Machine Co.
Dodge Mfg. Co.
Evans, G. Frank.
Horsburgh & Scott.
Howard Foundry & Mch. Wks.
Hunter, Jas., Machine Co.
Jeffrey Manufacturing Co.
Kilburn, Lincoln & Co.
Pittsburgh Gage & Supply Co.
Philadelphia Drying Machinery Co.
Reeves Pulley Co.
Saginaw Manufacturing Co.
Schofield, Wm. Co.
Sellers, William & Co.
Smith, Jas., Woolen Machinery Co.
Speed Changing Pulley Co.
Textile Finishing Machinery Co.
Preparatory Machinery (Cotton).
Atherton, A. T., Mach. Co.
Howard & Bullough Am. Machine Co.
Kitson Machine Co.
Leigh, Evan A.
Riley, C. E. & Co.
Saco & Pettee Machine Shops.
Smith, Jas., Woolen Machinery Co.
Press Boards and Fenders.
Rogers Paper Mfg. Co., Inc.
Pressers for Flyers.
Baker Machine Co.
Presses.
Boomer & Boschert Press Co.
Butterworth, H. W. & Sons Co.
Curtis & Marble Machine Co.
Gessner, David.
Hart, Charles.
Howard Foundry & Mch. Wks.
Miller Press & Machine Co.
North Chelmsford Machine Co.
Spence & Rideout.
Textile Finishing Machinery Co.
Woonsocket Machine & Press Co.

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A Sure Sign of Excellence

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ON
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MANUFACTURERS
James Bennett Forsyth, Gen. Mgr.
BOSTON NEW YORK BUFFALO PHILADELPHIA ATLANTA

MECHANICAL RUBBER GOODS of every description.

Pressure Regulators.
Crosby Steam Gage & Valve Co.
Mason Regulator Co.
Walworth Mfg. Co.

Pulleys.
——See Power Transmitting Machinery.

Pumps.
Allis-Chalmers Co.
Goulds Mfg. Co.
Textile Finishing Machinery Co.

Pump Governors.
Crosby Steam Gage & Valve Co.
Mason Regulator Co.
Walworth Mfg. Co.

Purifying & Filtration Plants.
Kennicott Water Softener Co.
Norwood Engineering Co.
Scaife, W. B. & Sons.

Quillers.
Foster Machine Co.
North Chelmsford Machine Co.
Payne, G. W. & Co.

Rag Pickers.
Philadelphia Textile Machinery Co.
Schofield, Wm. Co.
Smith, Jas., Woolen Machinery Co.

Ramie Tops and Noils.
Tierney, Frank A.

Raw Hide Gears.
Horsburgh & Scott.
New Process Raw Hide Co.

Reed and Harness Manufacturers.
American Supply Co.
Walder, J.

Reels.
Luther, C. A. & Co.
North Chelmsford Machine Co.

Reducing Valves.
Crosby Steam Gage & Valve Co.
Mason Regulator Co.
Walworth Mfg. Co.

Regulators (Pressure).
Crosby Steam Gage & Valve Co.
Mason Regulator Co.
Walworth Mfg. Co.

Remnants.
Feingold, H. & D.

Ribbons.
Cheney Bros.

Ring Travelers.
National Ring Traveler Co.
Shaw, Victor, Ring Traveler Co.

Roofing.
Standard Paint Co.

Rope and Twine Machinery.
Brownell, G. L.
Garsed, W. R.
Haskell-Dawes Machine Co., The

Rope Transmissions.
Dodge Mfg. Co.

Roving Cans.
Hill, James, Mfg. Co.
Laminar Fibre Co.
N. E. Ventilating & Heating Co.
Walrus Fibre Mfg. Co.

Rubber Covered Rollers and Goods.
Boston Belting Co.

Rubberoid Roofing.
Standard Paint Co.

Saddles and Stirrups.
Dixon Lubricating Saddle Co.

Scales.
Sweet & Doyle.

Scallop Machines.
Merrow Machine Co.

Schools.
American School of Correspondence.
Lowell Textile School.
New Bedford Textile School.
Philadelphia Textile School.

Secondhand Machinery.
——See Mchry. Dealers also classified ads.

Screens (Perforated).
——See under Perforated Metal.

Selling Agents.
——See Commission Merchants.

Separators.
Draper Co., The

Sewing Machines and Supplies.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros. Co. (Somerville Mchn. Works).
Champion Machine Co.
Curtis & Marble Machine Co.
Dinsmore Mfg. Co.
Fales, L. F.
Manufacturers' Supplies Co.
Somerville Machine W'ks, Birch Bros. Co.
Textile Finishing Machinery Co.
Union Special Sewing Machine Co.
Willcox & Gibbs S. M. Co.

Shafting, Hangers, Etc.
——See Power Transmission Machinery.

Shearing Machinery.
——See Dyeing, Drying, Bleaching and Finishing.

Sheet Metal Work.
Barney Ventilating Fan Works.
Hartford Blower Co.
Lupton's, David, Sons Co.

Shell Rolls.
Thurston, A. G. & Son.

Shoddies.
——See Wool Shoddies.

Shuttles.
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Silk Machinery.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros. Co. (Somerville Mchn. Works).
Butterworth, H. W., Sons Co.
Leigh, Evan A.
Mason Machine Works.
Stoddard, Haserick, Richards & Co.
Textile Finishing Machinery Co.

Silk Mill Supplies.
Hall, I. A. & Co.

Singe Plates.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros. Co. (Somerville Mchn. Works).
Butterworth, H. W., Sons Co.
Taunton, New Bedford Copper Co.

Singeing Machines.
Arlington Mch. Wks. (Arthur Birch, prop.)
Butterworth, H. W., Sons Co.
Curtis & Marble Machine Co.
Knapp, Charles H.
Leigh, Evan A.
Somerville Machine W'ks, Birch Bros. Co.
Smith, Drum & Co.
Textile Finishing Machinery Co.

Sizing, Starch and Gums.
Arabol Mfg. Co.
O. K. Soap Co.
Stein, Hirsch & Co

Skylights.
Drouve, G., Co.
Lupton's, David, Sons Co.

Slashers.
Cohoes Foundry & Machine Co.
Leigh, Evan A.
Lowell Machine Shop.
Riley, C. E. & Co.

Smokestacks.
Allen, Wm. & Sons Co.
Hartford Blower Co.

Soaps.
India Alkali Works.
O. K. Soap Co.
Rome Soap Mfg. Co.
Tully, J. J.

Spindles.
Bamford & Smith.
Buckley, Benjamin, Sons, Gun Mill.
Draper Company.
Easton-Burnham Co.
Leigh, Evan A.
Riley, C. E. & Co.
Stoddard, Haserick, Richards & Co.
Ward & Vandegrift.
Whitin Machine Works.

Spindle Tubes.
Bamford & Smith.
Riley, C. E. & Co.
Stoddard, Haserick, Richards & Co.

Spinning Cylinders.
N. E. Ventilating & Heating Co.

Spinning Frames.
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Spinning Rings.
Draper Company.
Whitinsville Spinning Ring Co.

Spinning Tubes.
Buckley, Benjamin, Sons, Gun Mill.

Spools.
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Spoolers.
Easton & Burnham Machine Co.
Lindsay, Hyde & Co.
Payne, George W. & Co.

Stamps for Hosiery.
Atlas Copper Stamp Works.
Wells, Wilfred.

Steam Boilers.
Allen, Wm. & Sons Co.

Steam Boiler Insurance.
Hartford Steam Boiler Inspection & Insurance Co.

Steam Boxes.
Allen, Wm. & Sons Co.

Steam Engines.
Allis-Chalmers Co.
American Blower Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Atlas Engine Works.
Birch Bros. Co. (Somerville Mchn. Works).
Buffalo Forge Co
Fishkill Landing Machine Co.
Harrisburg Foundry & Machine Co.
Hooven (The), Owens & Rentschler Co.
Sturtevant, B. F. & Co.
Textile Finishing Machinery Co.

Steam Jacket Kettles.
Badger, E. B. & Sons Co.

Steam Pumps.
Goulds Manufacturing Co., The.

Steam Specialties.
Butterworth, H. W., Sons Co.
Crosby Steam Gage and Valve Co.
Lunkenheimer Co.
Mason Regulator Co.

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(Trade Mark Registered.)

STANDARD FOR TWELVE YEARS.

The only prepared Roofing for mills, factories, foundries, etc., which has proved its ability to resist the severest conditions. Proof against water, acids, heat, alkalies, gases, fumes, etc. Fire-resisting. Practically indestructible. Outlasts tin and iron. Send for samples and Booklet I.

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104 WILLIAM STREET, NEW YORK.

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Power Specialty Co.
Standard Gauge Mfg. Co.
Sturtevant Co., B F.
Textile Finishing Machinery Co.
Walworth Manufacturing Co.

Steam Traps.
Albany Steam Trap Co.
Lunkenheimer Co.

Steel Rolls.
Baker Machine Co.

Stop Motion for Looms.
—See Warp Stop Motions.

Tanks, Tubs and Vats.
Caldwell, W. E. Co.
Cypress Lumber Co.
Hall, Amos H. Son & Co.
Lewis, H. F. & Co.
North Chelmsford Machine Co.
Stevens, D. B. & Co.
Textile Finishing Machinery Co.

Tapes, Braids and Edgings.
Cathcart, John & Co.
Chapin, George W.
Friedberger Mfg. Co.
Hoffman, DeWitt & McDonough.
Krout & Fite Mfg. Co.
Weimar Bros.

Temples.
Draper Co.

Tentering Machines.
—See Dyeing, Bleaching Machinery, Etc.

Tenter Clips.
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Testing Machines.
Howard Foundry & Machine Works.

Textile Schools.
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Thread Board for Spinning & Twisting Frames.
Houghton, L. T.

Thread Dressers or Polishers.
Luther, C. A. & Co.

Ticketing Machinery.
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Tower Clocks.
Howard, E., Clock Co.

Trucks (See Mill Trucks).
Towsley, John T. Mfg. Co.

Turbines.
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Twine Machinery.
Garsed, W. R.
Haskell-Dawes Machine Co.

Twisting Machinery.
Garsed, W. R.
Philadelphia Textile Machinery Co.

Valves.
Boston Belting Co.
Crosby Steam Gage & Valve Co.
Lunkenheimer Co.
Mason Regulator Co.
Walworth Mfg. Co.

Ventilating Apparatus.
Allington & Curtis Mfg Co.
American Air Moistening Co.
American Blower Co.
American Drying Machinery Co.
Barney Ventilating Fan Works.
Berry, A. Hun.
Boston Blower Co.
Buffalo Forge Co.
Drouve Co., G.
Hartford Blower Co.
Massachusetts Fan Co.
Nichols, E. M.
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Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Smith, Jas., Woolen Machinery Co.
Sturtevant, B. F., Co.
Wing, L. J. Mfg. Co.

Warping and Beaming Machinery.
Draper Co.
Entwistle, T. C., Co.
Philadelphia Textile Machinery Co.

Warp Stop Motions.
Draper Co.
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Washers (Cloth).
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Hunter, Jas., Machine Co.
Kenyon, D. R. & Son.
Philadelphia Drying Machinery Co.
Somerville Machine W'ks, Birch Bros. Co

Washing Soda.
Ford, J. B., Co.

Watchman's Clocks.
Howard, E., Clock Co.
Imhauser, E. & Co.
Nans & Co.
Riggs & Brothers.

Water Purifiers & Filters.
Scaife, W. B. & Sons.

Water Softeners.
Kennicott Water Softener Co.

Water Towers.
Caldwell, W. E., Co.
Stevens, D. B. & Co.

Water Wheels.
Hunt, Rodney, Machine Co.
Leffel, James & Co.
Risdon-Alcott Turbine Co.
Smith, S. Morgan, Co.

Water Wheel Governors.
Cohoes Foundry & Machine Co.
Leffel, James & Co.
Replogle Governor Works.

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Winders.
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Payne, George W. & Co.
Universal Winding Co.

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Winders (Ball.)
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Sweet & Doyle.

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IN YOUR MILL OR FACTORY BY USING AN

ALLINGTON OR MARSHALL

Dust Collecting System

ALLINGTON & CURTIS MANUFACTURING CO., Saginaw, Mich.

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Wool Combing Machinery.
Crompton & Knowles Loom Works.
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Riley, C. E. & Co.
Stoddard, Haserick, Richards & Co.

Wool Oils.
Borne, Scrymser Co.

Wool and Waste Dusters.
Atlas Foundry & Machine Co.
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Leigh, Evan A.
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Sargents', C. G., Sons.
Schofield, Wm. Co.
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Stoddard, Haserick, Richards & Co.
Textile Finishing Machinery Co.
Whiteley, William & Sons, Ltd.
Woonsocket Machine & Press Co.

Wool Oiling Apparatus.
Harwood, Geo. S. & Son.

Wool Shoddies.
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Riverdale Woolen Co.
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Sargent's, C. G., Sons.
Smith, Jas., Woolen Machinery Co.
Stoddard, Haserick, Richards & Co.

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Catlin & Co.
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Charles, W. B.
Dana Warp Mills.
Dexter Yarn Co.
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English-Greene Co.
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Greene & Daniels Mfg. Co.
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Orswell Mills.
Salkeld, A. D. & Bro.
Sternberg, Fred & Co.
Strouse, Theo. H. & Co.
Whittier Mills

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Jenckes Spinning Co.
Sternberg, Fred & Co.

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Fawcett, Hughes.
Sternberg, Fred & Co.
Tierney, F. A.

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Ballou Yarn Co.
Cooper Mercerizing Co.
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Greene & Daniels Mfg. Co.
Moeller & Littauer.
Sternberg, Fred & Co.

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Fawcett, Hughes.
Moore, C. & Co.
Sternberg, Fred & Co.
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Hosiery and Knitting Yarns.
Blythe, Richard A.
Boyer, B. F., Co.
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Chapin, George W.
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Greene & Daniels Mfg. Co.
Herbst, Albert & Co.
Hyde, E. S.
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Mitchell, James E. & Co.
Moeller & Littauer.
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Queensbury Mills.
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Sternberg, Fred & Co.

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Harper, E. J.
Indian Orchard Co.
Lorimer, Wm. H. & Sons Co.
Luzerne Cotton Yarn Co.
Moeller & Littauer.
Montgomery, J. R. & Co.
Norwich Processing Corporation.
Pennypack Yarn Finishing Co.
Sternberg, Fred & Co.
Strouse, Theo. H. & Co.

Mohair Yarns.
Cranston Worsted Mills.
Moeller & Littauer.
Montgomery & Co. J. R.

Novelty Yarns, Tinsels, Silk Noils, Etc.
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Indian Orchard Co.
Jenckes Spinning Co.
Malcolm Mills Co.
Moeller & Littauer.
Montgomery & Co. J. R.
Skerry, A. T. & Co.
Sternberg, Fred & Co.

Silk Noils.
Tierney, F. A.

Silk Yarns.
Chapin, Geo. W.
Cheney Bros.
Eddy & Street.
Ryle, Wm. & Co.

Woolen and Merino Yarns.
Boyer, B. F., Co.
Eaton Rapids Woolen Mills.
Eddy & Street.
Harper, E. J.
Hyde, E. S.
Jenckes Spinning Co.
Moeller & Littauer.
Rockwell, E. M.
Salkeld, A. D. & Bro.
Skerry, A. T. & Co.
Solms, Andrew J., Jr. & Co.
Speed & Stephenson.

Woolen Yarns.
Adams, Joseph M., Co.
Moeller & Littauer.

Worsted Yarns.
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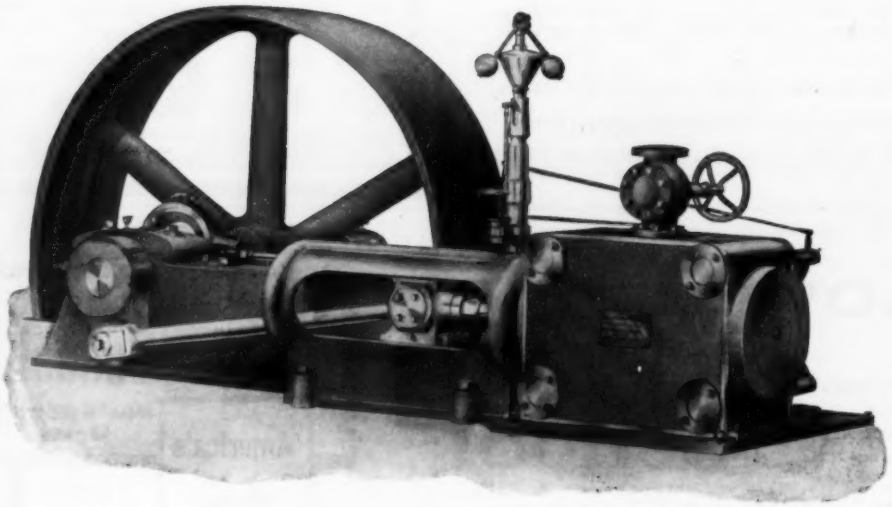

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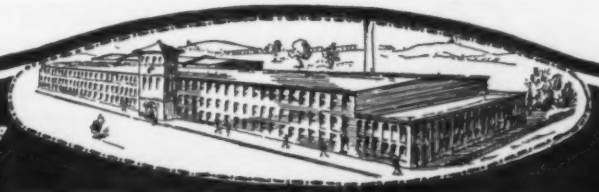

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Near Philadelphia, with or without Machinery and Good Will, or owner would leave part interest as stock. At present occupied as Knitting Mill, but has ample room and power for heavier work. Lot 300 by 160 feet. Main building stone and brick. Boilers 160 H. P., Engine 65 H. P. For particulars address "B," care Textile World Record, Boston.

SECOND-HAND APPERLY FEEDS FOR SALE

Replaced by Bates Positive Driven Feed. Apply

E. V. BATES,
Box 539, Lowell, Mass.

Knitting Mill Machinery Wanted.

I WANT TO BUY Ribbers, Loopers, Presses, Welters, Bonaz Machines, Underwear Finishing Machines, etc., etc., at low spot cash prices. Send me list of what you have, description and price.

EDWIN A. NEWTON,
245 Race St., Philadelphia.

Dealer in New and Second Hand Knitting Mill Machinery Supplies. Agent for the Hemphill Knitters.

FOR SALE

PAXTON & O'NEILL MACHINES 3-4 AUTOMATICS.

24-200 needles 4 in. spliced foot attachment. 6 extra cylinders 176 needles. For ladies plain or drop stitch hose.

Also 6-186 needles 3 3-4 in. and 12-200 needles 4 in. each with extra cylinder for men's plain or drop stitch 1-2 hose.

All of the above can be seen in running order. Reasons for selling, want the room for full fashioned machinery.

Also 6 machines for lace 1-2 hose with extra cylinders 200 needles 4 in. Make us an offer for all or part. Address "Machines," care Textile World Record, Boston.

IMPORTANT TO MANUFACTURERS OF WORSTED OR WOOL FABRICS

For Sale. A new method of Melange printing in the piece. Most perfect and cheapest process of manufacture of Melange goods. For particulars and samples address P. O. Box 733, Sanford, Me.

FOR SALE.

Yorkshire Teasel Gigs and Slats

Write for particulars to

W. W. CRANE FOUNDRY AND MACHINE WORKS,
122-124 Clark St., Auburn, N. Y.

METRIC SYSTEM OF YARN COUNTS.

Important to Spinners, Manufacturers and Shippers.

INTERNATIONAL YARN TABLES.

Computed and Arranged by M'Lennan, Blair & Co., Glasgow.

Showing the equivalent Metric Count from No. 1 to No. 1,000 of all the leading systems of Count in use in Europe and America.

Price 50 cents.

These tables are issued with the approval of the Comite Permanent International du Congres de 1900, pour l'Unification du Numerotage des Fils. The letterpress is in English, French, German and Italian.

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SHEARS for finishing Cotton, Wool or Worsted Fabrics made in single sets or in several sets to finish face and back at one feed, saving space, time, cost. The Combined Shear and Roller for Carpets is an example. Baling and Finishing Presses for Straw, Felt and Buckram Hats. Shafting, Gearing. We grind or repair all makes of Shears. HOWARD FOUNDRY & MACH. W'K S, Landsdowne, Delaware Co., Pa.

HOSIERY MILL WANTED

WANTED, to buy a Hosiery Mill equipped for the manufacture of Seamless Hosiery, in a location where there is an abundance of good female help.

Address "CEDAR." Textile World Record, Boston, Mass.

Knitting Machinery For Sale

IN NEW YORK STATE IN GOOD ORDER.

9 automatic Nye & Tredick	8 feeds, 13	inch
2 automatic Nye & Tredick	8 feeds, 12½	inch
2 automatic Nye & Tredick	8 feeds, 12	inch
2 automatic Snyder & Fisher	8 feeds, 14	inch
2 automatic Snyder & Fisher	8 feeds, 15	inch
2 automatic Brinton & Co.	8 feeds, 11	inch
2 automatic Brinton & Co.	8 feeds, 12	inch
1 automatic Fisher & Co.'s sleever	2 feeds, 4	inch
1 automatic Fisher & Co.'s sleever	2 feeds, 4¼	inch
7 automatic Nye & Tredick sleevers	2 feeds, 4½	inch
7 automatic Snyder & Fisher sleevers	2 feeds, 4½	inch
3 automatic Snyder & Fisher sleevers	2 feeds, 4¾	inch

All the above are 24 gauge, cut 8 needles per inch, also extra cylinders and dials, 36 gauge. New cylinders and dials were placed in the above machines a few months before shutting down.

Address "W. G. H.," Textile World Record, Boston, Mass.

IMPORTANT TO WOOL MEN

FOR SALE

PROCESS OF CARBONIZING wool in the grease. Will carbonize sample lots.

Address L. CLARENBACH, Jr.
99 Franklin Street
New York City

FOR MANUFACTURERS OF CASSIMERES, FANCY WORSTEDS, COTTONADES, etc.

FOR SALE.—A NEW METHOD of DESIGNING on ordinary Crompton or Knowles Harness Pattern Looms

From 4 to 6 times the number of designs made as by present method. A blanket of patterns woven by advertiser demonstrating a practical result may be inspected in New York by addressing

EXPERT DESIGNER,

Care of Textile World Record. 123 Liberty St., N. Y.

MEN WANTED.

Same rates as Wants, For Sale, etc. Manufacturers will be furnished, without charge, with the names of suitable men who are entered on our list, and can usually supply their wants in this way.

WANTED — Designer and Assistant Superintendent for large Worsted Mill. Must thoroughly understand Piece Dyes. Address Box 1123, Providence, R. I.

WANTED
ASSISTANT SUPERINTENDENT,

To take charge of WARPING AND WEAVING rooms in a large WORSTED DRESSGOODS MILL. Thorough knowledge of English looms and of Crompton-Knowles looms necessary. Salary about $2000, to right party. Address, giving full particulars of past experience, "A 150," care Textile World Record, 123 Liberty Street, New York.

A First Class Superintendent wanted to take charge of a cotton hosiery mill plant. 100 machines, Standards and Nationals. Address, Hosiery, Textile World Record, Boston.

Wanted—An Energetic Young Man of thorough experience in the manufacture of light-weight worsted and woolen dress goods in staple qualities. Must be familiar with the most favorable conditions of production and competent in constructing fabrics to the best advantage. Address, stating experience and salary wanted, T. S., Textile World Record, Boston.

Wanted—Assistant Superintendent. A suitable man for the situation of assistant superintendent in woolen knit goods manufacturing, one who would have a thoroughly practical knowledge of carding and spinning and who would be able to look after raw stock and take charge of batches. Address Assistant, Textile World Record, Boston.

Want Men Familiar with Oiling Wool to sell Wool Oils in New England. Old established brands on market twenty years. Correspondence confidential. Address "F. W. B.," care of Textile World Record, Boston.

Wanted—Knitter who thoroughly understands Scott & Williams and Mayo full automatic hosiery machines. Address Oneida Hosiery Co., Oneida, N. Y., giving full particulars as to experience, salary expected, etc.

SITUATIONS WANTED.

A COMPETENT DESIGNER AND FINISHER MILL SUPT.
on Staple and fancy Worsteds and Cheviots for men's wear and dress goods DESIRES ENGAGEMENT. At present with one of the largest concerns in the country. Twenty years experience, 36 years old, married. Address, "Designer," care Textile World Record, 123 Liberty St., N. Y. City.

KNITTING MILL SUPERINTENDENT.

Position wanted as superintendent of a knitting mill—have had several years experience in the business. Will guarantee to produce a line of men's wool goods that will sell 50,000 dozen per year, and a line of men's cotton goods that will sell 150,000 dozen per year. Thirty years of age and strictly temperate. Can furnish the best of references. Address, Box G, Textile World Record.

TRAVELING SALESMAN.

Now covering the mills in New England states, solicits interview with a first class house desiring a representative for above mentioned territory. Address "X Y Z," care Textile World Record, Boston.

Two Young Men would accept positions as expert card-cutters or assistant designers in Jacquard Mill, good knowledge of Jacquard Head. Address H. & P., Textile World Record, Boston.

SITUATIONS WANTED.

COTTON SUPERINTENDENTS.

Wanted, position as superintendent of cotton cloth or yarn mill. American, 42 years old. 27 years' mill experience. Past six years as superintendent. Goods from 3 1/2 to 14 yards per pound. Recommendations from Massachusetts and Vermont mills. 214, Textile World Record.

Superintendent Cotton Mill open to a position. Age 33; American; married. Good experience as overseer of carding in large mills. Combed and carded hosiery yarns, shirtings, sheetings, cheviots, madras. First-class references. 2096, Textile World Record.

Superintendent. Worked on ginghams and cotton warps of all kinds. Lowell, Whitin and Draper machinery. Age 41; American. Good experience. 2095, Textile World Record.

Superintendent cotton spinning mill is open to position. Age 32; German; married. Is familiar with all kinds of cotton goods. Excellent references. 2074, Textile World Record.

Assistant Superintendent, Chief or Mechanical Engineer. Age 38. Technical graduate. 15 years' practical experience in cotton and flax mill repairs and equipment, well acquainted with cotton, flax, tow and jute machinery, and detail construction of same, also with the installation of power plants and power transmission. Would make a first-class mechanical superintendent. Best of references. Prefer New England. 2068, Textile World Record.

Supt. of Cotton Mill, or overseer of mule or ring spinning is open to a position; 16 years' experience in Northern mills, on yarns, denims, awnings, apron checks, bicycle suitings, shirtings, etc., etc. Familiar with all well-known makes of cotton machinery; 29 years old; American; married. Can give references from large Massachusetts mills. 1527, Textile World Record.

Superintendent. Would like position in South. Not particular about salary to start. Machinist and thoroughly acquainted with all kinds of card room machinery, also spinning frames. Taken superintendent course in textile school and has had 23 years of practical experience in the mill, mostly on fine yarn work. 3044, Textile World Record.

Cotton Mill Superintendent. Age 38; Scotch; married. All counts of American and Egyptian cotton from 10 to 60, twist and weft, warps, beams, and bundles and crape yarns, super quality. Familiar with Platt, Asa Lee, Howard & Bullough, Hetherington and Brooks & Doxey machinery. First-class references. 3042, Textile World Record.

Situation Wanted by a practical man as working superintendent in a flax, tow, hemp or jute factory, making all kinds of yarn, threads, twines, etc. Best of references. 533, Textile World Record.

Superintendent, or overseer of carding. Worked on combed and carded yarn from 20 up to 140, twilled sateens, lawns, sheetings and shirtings. English and American machinery. 3036, Textile World Record.

Cotton Mill Superintendent, or assistant. Age 34; married. Worked on cotton machinery on coarse and medium numbers. Textile school education in designing, carding and spinning. 3003, Textile World Record.

WOOLEN SUPERINTENDENTS.

Superintendent of large experience in the manufacture of woolen and worsted fancies and suitings, is open to an engagement as superintendent or designer. Age 45; American; married. Good references. 1982, Textile World Record.

Superintendent or designer. Age 35; American; unmarried. Satinets, unions, fancy cassimeres, kerseys, worsteds. Good experience and references. 3058, Textile World Record.

Superintendent. Worked on cassimeres, unions, satinets, overcoatings, horse goods, bed blankets, linings, etc. Understands stock mixing, picking and figuring. Has had full charge of mill. 3074, Textile World Record.

Agent, or superintendent, or superintendent and designer. Good manager of help and a hustler. Thoroughly understands manufacture of shoddy in all its branches, including carbonizing and extracting. Familiar with all manipulations of wool, shoddy and cotton. Fully competent to take agent's position, as is a good wool buyer, and can figure all prices on goods and percentages, etc. 2053, Textile World Record.

Manager or Superintendent of a woolen mill, who understands designing, is open to an engagement. 34 years old; Scotch, and single. Large experience in Scotch and Canadian mills on tweeds, worsteds, overcoatings, etc. Good references. 1890, Textile World Record.

Superintendent or Designer, an American, married, 38 years of age, is desirous of obtaining a position. Understands the manufacture of worsteds, cotton worsteds, cassimeres, meltons—steam face, flannels, and horse and bed blankets. Long experience and up-to-date in methods. Moderate wage. 1936, Textile World Record.

Superintendent. American; married. Worked on cassimeres, dress goods, cotton warps, and has had some experience on worsteds. Will go anywhere, but would like a good Western mill. Good experience. 3034, Textile World Record.

Superintendent woolen mill. Age 47; English; married. Wants New England or Middle States. 10 years' experience in first-class N. E. mills. 2028, Textile World Record.

Woolen Superintendent. Worked on nearly all kinds of men's wear and dress goods. Good experience as overseer and superintendent. Aged 51; American; married. 813, Textile World Record.

Manager and Buyer. Blankets, yarns, rugs and government cloths. Young Englishman, 30, managing a plant of 19 sets cards and 200 looms in England, desires similar position in Canada or the States. Thoroughly practical in every department. Can invest up to $1,500 into a small business of this kind. 1976, Textile World Record.

Designer or Designer and Superintendent. Fancy cassimeres of every description, men's wear in general, also fancy cloakings, golf goods, coverts, dress goods, both piece dyed and fancy, kerseys, etc. Aged 42; married; American. 1250, Textile World Record.

Superintendent or designer of small or medium sized mill. All kinds of fancy worsteds, cassimeres, cheviots, overcoatings and dress goods. Age 31; married; Scotch. 3076, Textile World Record.

COTTON CARDERS.

Carder in Cotton Mill. Coarse or fine, white or colored, hosiery, Egyptian, etc. Age 35; Canadian; married. 3029, Textile World Record.

Overseer of Carding. Large experience on all kinds of work and both English and American systems. Can furnish first-class references. Had charge of carding in some of the best New England mills. 3009, Textile World Record.

Overseer of Carding. Age 39; married. Worked on coarse and fine numbers and combers. American and English machinery. 3012, Textile World Record.

Overseer of Carding or cotton ring spinning. Worked on carded and combed Peelers, Egyptian, and Sea Island cottons, making yarns from 8 to 80. 3015, Textile World Record.

Overseer Cotton Carding or Spinning desires position. Age 47; American; married. Is familiar with all the modern makes of English and American machinery, revolving top flat cards, single and double carding. 2073, Textile World Record.

Overseer of Carding. Has held all positions in picker and card rooms. White and colored goods, 5s to 40s. 3070, Textile World Record.

Overseer of Carding Mill. All kinds of fine yarns. Started up two of the largest card rooms in New England. Considered an expert in the manufacture of combed yarns from the bale to the finished article. First-class recommendations. 1745, Textile World Rcord.

Overseer of Cotton Carding. Worked on all classes of cotton, carded and combed, in counts to 135s. Will not go West or South. 3061, Textile World Record.

Overseer of Carding or Ring Spinning. Age 35; American. Sheetings, prin s and yarns, coarse and fine. Worked on most American machinery, but is more familiar with Lowell & Whitin. 1915, Textile World Record.

Overseer of Cotton Carding. Worked on all classes of cotton, carded and combed, in counts to 135s. 3061, Textile World Record.

WOOLEN CARDERS.

Overseer of Woolen Carding, age 32; American; married. Good experience and excellent references. Worked in kerseys, meltons, cheviots, cassimeres, coverts, dress goods, broadcloths, etc. 2060, Textile World Record.

Overseer for Washing, Carding or Combing wool for worsted wants to better himself. Speaks German, French and English. Best of references. 2033, Textile World Record.

Carder, or carder and spinner. Age 49; American. Has worked on all kinds of woolens, and of late on shoddy and cotton mixes. Is familiar with Davis & Furber machines. Excellent reference from past employer. 1944, Textile World Record.

Overseer of Woolen Carding. Worked on all wool, wool and shoddy, wool, shoddy and noils. Wants $4 a day. Familiar with Davis & Furber, Furbush, Lombard and Bollette and Brown Patent. 3071, Textile World Record.

Overseer of Carding and Spinning. Middle aged; English; married. Dress goods, flannels, blankets, overcoatings and plush goods. English and American makes of machinery, also an expert on the Bolette. 2079.

COTTON WEAVERS.

Overseer of Weaving or designer. Lawns, sheetings, twills, sateens, quilts, bedford cords, lappets. A young man; unmarried. Good experience and first-class recomendation. 3063, Textile World Record.

Overseer of Weaving. Englishman; 33 years of age; married. Worked on fine lawns, sheetings, sateens and fancies, coarse drills, twills, bicycle cloth, automobile cloth for tires. Familiar with Whitin, Crompton, Knowles, Mason, Kilburn & Lincoln and Lowell machines. 3073, Textile World Record.

Overseer of Weaving. Accustomed to fancies. Can do own designing and figuring. Good references from past employers. Is open to go anywhere. Had experience on many kinds of looms, including the Draper. 1731, Textile World Record.

Overseer of Weaving in cotton mill. Worked on lawns, dimities, sheetings, corduroys, velveteens, etc. Colvin, Mason, Whitin, Kilburn & Lincoln, Knowles and Draper looms. 3011, Textile World Record.

Boss Weaver wants position. Very wide experience. White and colored, plain and fancy. Understands all kinds of looms. 335, Textile World Record.

Overseer of Weaving. Age 35; Scotch; married. Good experience, and excellent references, Crompton, Whitin, Lowell, Colvin, Woonsocket and English looms. Sheetings, lawns, ginghams, flannels, fine worsteds, dress goods, shirtings and novelty goods. 2016, Textile World Record.

WOOLEN WEAVERS.

Overseer of Weaving, also designer. Men's wear, woolen and worsted, and fancies of all kinds, cotton worsteds, dress goods. Knowles and Crompton looms. Age 35. 3056, Textile World Record.

Overseer of Weaving, or would take good second hand job. Age 42; married. Worked on dress goods, suitings, plaid backs, cloakings, meltons and other classes of goods. Worked on Crompton & Knowles loom. 3016, Textile World Record.

Woolen Boss Weaver. Steady, reliable and an excellent man in a weave room. Has worked on almost all kinds of woolen goods, and is familiar with Crompton & Knowles looms. Will accept position for not less than $2.50 per day. 2088, Textile World Record.

Boss Weaver or assistant designer. Wants position with a firm who is willing to advance a man as he proves himself worthy. 28 years old; married, and a steady worker. For past six years worked in all parts of the weave room and pattern room, pattern weaving and dressing, chain building, harness raising, perching, fixing and regular weaving. Now taking course of study in woolen and worsted designing. Excellent reference. 2019, Textile World Record.

Boss Weaver or assistant superintendent. Worked on all kinds of worsteds and woolens. Crompton & Knowles looms. Wants place at once. Middle aged; English; married. Good experience. Excellent references. 3062, Textile World Record.

Boss Weaver. Aged 38; married. Cassimeres, beavers, kerseys, dress goods, flannels, blankets. Worked on Crompton & Knowles broad looms. Good recommendation. 3066, Textile World Record.

COTTON SPINNERS.

Overseer of Mule Spinning who has had a wide experience in large New England mills on yarns ranging from 24's to 160's is open to a position. 37 years old; American. Good references. 2003, Textile World Record.

Cotton Mule Spinner. Age 42; French; married. Has worked on prints and sheetings and on yarns from 9's to 50's. First class references. Two years' experience as secondhand and five as overseer. Wants $2.50 per day to start with. 1690, Textile World Record.

Secondhand Spinner. Held positions of charge of cone and tube winding and spooling, also section of spinning frames. Cotton yarns 8's to 100's on twisters, spoolers, winders, warpers. 3030, Textile World Record.

Overseer of ring spinning, spooling, warping and dressing. Will not go South. Middle aged; American; married. Good experience and references. 3059, Textile World Record.

Boss Ring or Mule Spinner. Age 43; English; married. Asa Lee mules, Lowell Machine Shop, Platt, Mason mules; Howard & Bullough, Lowell and Mason frames. Yarns from 5's to 90's. 3001, Textile World Record.

Overseer of Cotton Mule Spinning. Understands Mason and English makes of mules. Has worked in mule room sixteen years, five years as second hand and a year and a half as overseer. 28 years old; married; steady and temperate. Would like to get work in N. E. or New York states. Has worked on colored hosiery yarn and filling. 1822, Textile World Record.

Overseer of Ring Spinning. Aged 42; American; married. Ginghams, sheetings, awnings, denims, etc.; $3 to $4 per day. 3018, Textile World Record.

Overseer Ring Spinning, Warping and Spooling. Is experienced on white work from Nos. 4's to 30's. Is familiar with Whitin and Lowell Machine Shop spinning frames and spoolers and warpers. Wants $3 per day to start with. Age 39; American; married. 1703, Textile World Record.

WOOLEN SPINNERS.

Overseer of woolen spinning desires to make a change. Is familiar with suiting, union, cassimere, satinet and knitting yarns and all ordinary makes of machinery. 30 years of age; American; married. Good references as to character and ability. 1987, Textile World Record.

Overseer Woolen Spinning. Is thoroughly competent to take charge of a large spinning room. 38 years old; French; married. Has spun yarns for flannels, tweeds and knit goods, also cotton and wool mixes, shoddies, ranging in all from 1/2 to 14 runs. Is familiar with Davis & Furber, Johnson & Bassett, Platt and other makes. Very satisfactory references. 1917, Textile World Record.

Worsted Spinner or Section Hand. Age 22 and unmarried. At present employed, but not satisfied with surroundings. Would accept moderate pay. 1709, Textile World Record.

Overseer of Ring or Frame Spinning, or would take superintendent position. Age 41; married. 2040, Textile World Record.

Boss Spinner. Age 34; Scotch. Worked on all wool, cotton and wool and shoddy mixes. Will not go West, South or to Canada. References. Good experience. 3032, Textile World Record.

Overseer of Woolen Spinning. Age 44; American; married. Worked on cassimeres, flannels, tweeds and dress goods. Johnson & Bassett and Davis & Furber mules. Will not go West or South. Good experience and first-class recommendation. 3049, Textile World Record.

DYERS.

Boss Dyer and Bleacher. Age 34; English; married. Yarns, warps, knit goods. Can give good references. Wants $4 or more. 3020, Textile World Record.

Dyer or chemist. A young man 26 years old; single. Cassimeres, dress goods, overcoatings, cloakings, etc. 3057, Textile World Record.

Superintendent or assistant of dye or bleach works. Age 35; English; married. Will not go to Canada. 3053, Textile World Record.

Boss Dyer. German. Fifteen years' practical experience. Would like to go West or South. Worked on yarn, piece goods, raw stock, knit goods and hosiery. Can furnish references. 3045, Textile World Record.

Dyer. Age 33; Scotch; unmarried. Worked on every kind of woolen cloth, serges, meltons, shoddy worsted and woolen yarn, etc. Wants $5.50 per day. Will not go South. 3064, Textile World Record.

Dyer, Scourer and Bleacher in knitting mill. Age 39; married. All grades of underwear, spring and latch needles. First-class recommendations. Will not go West or to Canada. 3004, Textile World Record.

Dyer on cotton and woolen piece goods, yarn and fast black on cotton. Age 42; married. 3021, Textile World Record.

Boss Dyer. A young man; unmarried. Worked on knit goods, raw stock, dyeing wool and cotton. Refers to past employers. 3069, Textile World Record.

Cotton Dyer, bleacher or chemist. Age 39. Drills, ducks, sateens, brocades, cotton trowserings, cambric handkerchiefs, sheetings, etc., also printing. Large experience on all classes of cotton goods. 1966, Textile World Record.

FINISHERS.

Finisher of Cotton Goods, also worsteds, by calender, hot press and beetle, also understands frames, starching and mercerizing. Age 25; English. 3006, Textile World Record.

Finisher, both wet and dry. Age 28; English; married. Shirtings, ginghams, cotton dress goods, mercerized effects and men's cotton suitings and trouserings. Excellent references. 3007, Textile World Record.

Cotton Finisher. Age 27. Worked on prints, lawns, dimities, muslins, ducks, drills, Madras, etc. Understands folding and packing. 3005, Textile World Record.

Overseer of Finishing, worsted goods, white or fancy. A young man; married; English. Has had full charge of piece dye finishing. 3019, Textile World Record.

Boss Finisher. Worked on broad cloth, cheviots, kerseys, coverts, meltons, piece dyes, dress goods. Prefers Massachusetts, but will go anywhere in New England. Not employed and wants place at once. Young man; American. 3046, Textile World Record.

Boss Finisher. Would take good secondhand or wet finishing job. Age 41; English. All kinds of woolen and worsted goods, both steam and dry finish. Willing to go anywhere. Both English and American makes of machinery. Excellent references. 2061, Textile World Record.

Overseer of Finishing. Age 32; American. Woolen and worsteds, suitings, coatings, cloakings, cassimeres, cheviots, meltons, frieze, etc. 2070, Textile World Record.

KNITTERS.

Foreman of Knitting Room, spring needle or flat knitting. Age 28. Fleeces of all kinds and gauges, balbriggan from 20 to 30 gauge, flat wool work all gauges. Is familiar with Tompkins Bros., Campbell & Clute and Crane machines. 2062, Textile World Record.

Knitter. Worked on light and heavy weight ladies' ribbed vests and shaped vests, and all kinds of common knit goods. Familiar with Champion, Nye & Tredick, Star, McMichael & Wildman machines. Wants work in Pennsylvania or Western States. 3037, Textile World Record.

Boss Knitter, finisher or machinist. Worked on nearly all kinds of knit goods, and nearly all kinds of latch needle knitting machines and all kinds of machines used in finishing underwear. 889, Textile World Record.

Overseer Boarding and finishing hosiery. All kinds of men's, women's and children's hosiery, except silk. Age 41; American; married. Can furnish references. 3035, Textile World Record.

Asst. Superintendent or Boss Knitter. Age 29, strictly temperate and held position of boss knitter for past four years running. Fleeces, balbriggan and flat work on spring needles, and plaited, straight and shaped work on several makes of latch needles. Can give best of references. 1492, Textile World Record

Overseer on Spring Needle circular knitting machines wants position. An ingenious, energetic and progressive man, who has spent his life in one of the largest and best equipped knitting mills in country. Particularly good on fine jerseys, stockinets, fleeces, elderdowns, rubber linings, dress shields, blankets, slipper cloth, etc. 2094, Textile World Record.

Superintendent or knitter. Hosiery of all kinds and some experience on underwear. Spring and latch needle, rib and plain frames, 3/4 and full automatic, looping and sewing machines. Many years' experience, and a thoroughly practical man. Excellent references. 3075, Textile World Record.

DESIGNERS.

A Young Man, 23 years of age, competent to handle the designing for a cotton or silk mill, would like a position. Has made in cotton, plain, fancy and leno; in silk, tie silks, dress goods and linings. Looms, all well-known makes. Is Scotch, and single. 14 years' experience in weave room and designing room. Good references from N. J. and Conn. mills. Four workers in family—weavers. 1897, Textile World Record.

A First-Class Designer or superintendent desires position. Understands vestings, dress goods, silk labels, shoe facings, shoe straps, shirt labels and tapes of all descriptions. Large experience on Jacquard work. Age 36; single; English. Strictly temperate. 1773, Textile World Record.

Designer or Assistant Superintendent desires a position. 27 years old; Scotch; married. Familiar with all well known makes of machinery and with woolen, worsted and cotton goods. Good references. Will go to any part of the United States. Terms reasonable. 1996, Textile World Record.

Designer or Assistant Designer. Woolens and Worsteds. Five years' experience in the Pattern Room as weaver and foreman. Conversant with all the details, practical and technical. First-class references. English; married; age 28. 3031, Textile World Record.

Designer, or assistant designer. Unions, flannels, tweeds, beavers, serges and worsteds. Age 28; English; married. Can furnish first-class references. 3031, Textile World Record.

Smart Designer, high class worsteds and coatings and trouserings. Thorough experience leading factory. Now abroad; anxious to find employment in this country. Moderate start. 1816, Textile World Record.

MISCELLANEOUS.

Loom Fixer. Age 27. Knowles and Crompton looms. Wants not less than $2.25 per day. Will not go West or to Southern States. 3014, Textile World Record.

Salesman for hosiery and underwear. Age 37, single. Can furnish references. 3060, Textile World Record.

Master Mechanic, or mechanical superintendent. Many years' experience in general machine work and mill engineering. References. 3067, Textile World Record.

Fixer of sewing machines. Is familiar with machinery of all kinds that is used in making up and finishing knit underwear. Will not go West or South. Wants place at once. References. 3068, Textile World Record.

Master Mechanic in cotton mill. Wants $1,500 to $2,500 per year, according to duties and position. Can take place at once. Will not go to Western States or Canada. Familiar with steam engines, pumps, boilers, water wheels and complete cotton mill equipment. 3039, Textile World Record.

Second Hand in cloth room desires position. At present has charge of samples in large mill. Has worked on all classes of cotton goods. Strictly temperate. 3048, Textile World Record.

Overseer of Warping, Spooling and Winding. Dress goods and cloth. Will not go to Canada. Aged 40; married. Good experience. References. 3027, Textile World Record.

Asst. Superintendent. Young man, 26, graduate of Lowell Textile School (Woolen and Worsted Course). Has had considerable experience in setting up machinery, and worked in nearly every department of mill. Wants position in which there is a good chance to advance. 3040, Textile World Record.

Master Mechanic wishes position in the North. 35 years old; married. Worked 15 years on repairs. Wants $3.50 per day. Has license for running engines and boilers Understands all kinds of water wheels and care of same, dynamos and electric lights and also gas houses, and a good knowledge of building, all kinds of wood work and piping and blacksmithing. Understands cotton mill repairs as good as the best man at such work. 2025, Textile World Record.

An Expert on soap making and wool scouring will be open to a position shortly. Is familiar with the treatment of all grades. About 40 years old; English; married. Has worked for one concern in the United States for 12 years. 1980, Textile World Record.

Paymaster or Bookkeeper. Agent or Manager wood or iron working plant or small cotton mill. 23 years' experience. Expert accountant. Can take charge of all the office work in large factory or do all myself in small factory. Good references. Will go anywhere in New England or Middle States. 1881, Textile World Record.

Overseer Colored Cloth Room. Age 48; American. 25 years' experience as secondhand. 1765, Textile World Record.

A Second-class Engineer, 43 years of age, American, would like a position as such in a N. E. mill. Is steady and reliable. Good references from former employers. 1965, Textile World Record.

Fan and Motor For Sale.

A 24-in. ventilating fan and ½-H. P. electric motor with belt connections, rheostat and everything ready to run. Used in our former offices for ventilating, but have no occasion to use in our new offices. Will sell at a bargain. Run on an average half an hour a day for two years. In perfect condition. Lord & Nagle Company, 299 Devonshire St., Boston.

USEFUL BOOKS

General Subjects—Cotton or Woolen.

Manual of Weave Construction, by *Ivo Kastanek*, Edited and arranged by S. S. Dale . . $1.50

Textile Fibres of Commerce. *Hannon* $3.00
Textile Raw Materials. *Zipser* . . 5.00
Weave Lexicon for Harness Weaving. *Donat* 2.00
Mechanism of Weaving. *Fox* . . . 2.50
Calculations in Yarns and Fabrics. *Bradbury* 1.00
Jacquard Weaving and Designing. *Bell* 4.00
A New Industry or Raising the Angora Goat for Profit. *Black* 3.00

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The Jacquard Machine, analyzed and explained. *E. A. Posselt* 3.00
Textile Machinery relating to weaving. *E. A. Posselt.* Part 1 . . . . . 3.00
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On Cotton Manufacture.

Humidity in Cotton Spinning. *Dobson* $1.50
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Cotton Combing Machines. *Thornley* 3.00
Practical Carder. *Greer* 1.00
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Cotton Manufacturing. Part 1. *E. A. Posselt. Just published* . . $3.00
Cotton Manufacture. *Lister* . . . 3.00
Cotton Spinning. *Marsden* 3.00
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Plain Series of Cotton Spinning Calculations. *Cook* 1.5
Practical Cotton Calculations. *Ernest Whitworth.* 1.00
Cotton Carding. *Lindsay* 50

On Woolen Manufacture.

Spinning Woolen and Worsted. *McLaren* $1.50
Wool Spinning. *Vickerman* 1.75
Woolen and Worsted Manufacture. *Beaumont* 2.00
Weaving and Loom Fixing. *Nightingale* .50
Wool Carding. *Brown* 50

Woolen and Worsted Loom Fixing *Ainley* $1.00
Finishing Woolen and Mixed Fabrics *Reisèr* . . . . . In preparation
Cone Drawing. *M. M. Buckley.* . . .50
Finishing Woolens and Worsteds. *Greene* 50

Bleaching, Dyeing, Printing, Etc.

Mercerization. A Practical Manual, with 362 Samples. 2 vols. Just issued $7.50
Dyers' Materials. *Heerman* 2.50
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Science of Color Mixing. *Paterson* . . 3.00
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Color Printing of Carpet Yarns. *Paterson* 3.50

Sizing Ingredients *Monie* $1.00
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Bleaching and Calico Printing. *Duer* . 3.50
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Any of the above sent postpaid on receipt of price. Subscribers to Textile World Record may order books from us with the privilege of examination, and if not satisfactory they may be returned within a few days (postage or express paid by purchaser,) if in good order.

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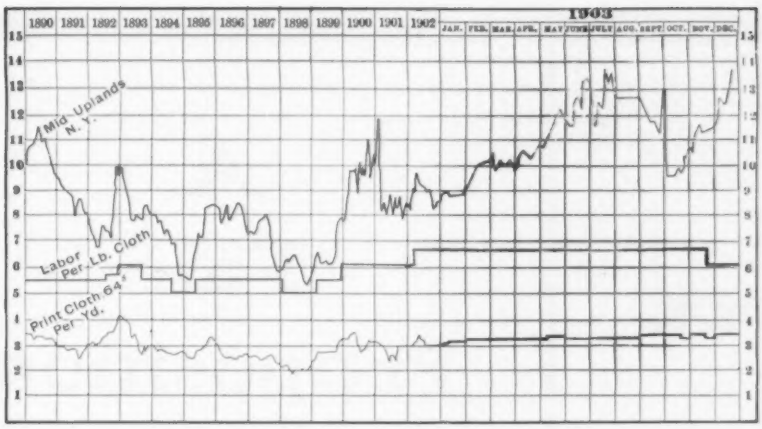
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CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

The Cotton Market.

Cotton is booming and at this writing middling uplands is quoted above 14 cents per pound, while predictions are freely made that 15 cents will be reached before the 1904 crop is ready for delivery. As a matter of course this advance in the raw material has seriously disturbed the calculations of the manufacturers, more especially as the buyers of goods have so far refused to concede a corresponding advance on manufactured goods. The rise in cotton this year comes at the best time for the planters. A glance at our chart will show that, with the exception of a brief period last July, cotton is much higher than at any time during the past 14 years. The present high price is accompanied by a large movement of the staple to the seaboard, and in spite of the scarcity the visible supply is very large, indicating that the planters are parting with their cotton at the present high level of values. The world's visible supply, Dec. 18, 1903, is estimated by the Chronicle as follows:

	1903	1902	1901	1900
American Bales,	3,208,271	3,076,136	3,446,143	3,307,533
Other,	582,000	618,000	554,000	595,000
	3,790,271	3,694,136	4,000,143	3,902,733

It is reported that Continental buyers made contracts for cotton early in the season and are now in a relatively better position than are the English and the American spinners. There can be no question, however, that the stock of cotton in the spinner's hands is much below the normal level at this time of the year. Mills in every part of the world were brought to a standstill by lack of cotton before the new crop was ready, and the exports have not been large enough to fill the storehouses of Europe. A large volume of cotton is coming from the South and a correspondingly large volume of money is going to the South.

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice Pres. and Sec'y.
Established 1860—Incorporated 1899.
THE S. BLAISDELL, JR., CO.,
COTTON, EGYPTIAN PERUVIAN
American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.
CHICOPEE, MASS.
Cotton Waste Purchased on Yearly Contract from Mills.

C. MOORE & CO.,
Manufacturers of
TWINES, THREADS AND YARNS,
Jacquard Harness Twines of all kind on hand and made to order.
S.W. Cor. Fifth and Market Sts., Phila.

Established 1848. Telephone Connection.
JAMES J. TULLY,
Manufacturer of
Fulling and Scouring Soaps
179-181 Master Street,
MILL SOAPS a Specialty. PHILADELPHIA.

HOFFMAN, DeWITT & McDONOUGH,
Diamond Stay Bindings TRADE MARK
Manufacturers of
Tapes, Webbing and Bindings.
COTTMAN and G STS., PHILADELPHIA
Ryer's Station, P. & R. R. R.
Bell Telephone, 203 Cheltenham.

None Genuine Without This Trade Mark

In Every Barrel.

A Fair Proposition

IF not already using Wyandotte Washing Soda in your mill, order from one to five barrels from your supply house. If not all we claim for it you may return the unused portion at our expense, and the trial will cost you nothing, that's a fair proposition. The longer you delay acceptance, the longer you defer your best interests. Cleaner, whiter, softer, loftier wool, a finished product with that special softness and fineness of texture and brightness of color so much desired by all mill men, these are what Wyandotte Washing Soda make possible. You need it—you should have it—then order now.

The J. B. Ford Co.,

Sole Mfrs.

WYANDOTTE, MICH.

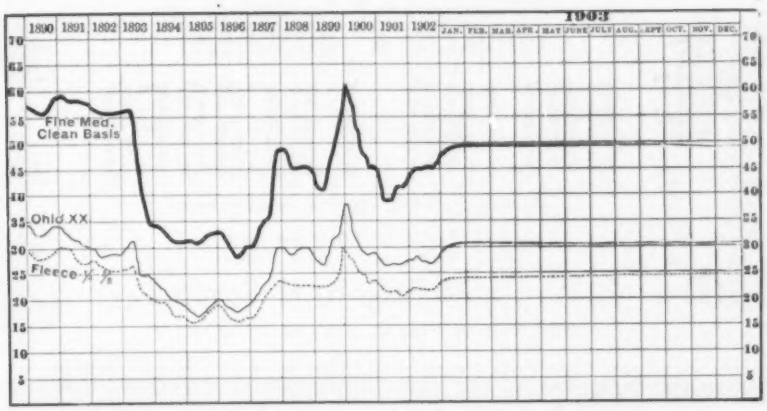

CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

The Wool Market.

There has been no improvement in the wool market during the past month. The dulness of the cloth market, the closing of accounts at the end of the year and the approach of a presidential year have restricted business and put an advance in the price of wool out of the question. Sales have been confined to the immediate requirements of manufacturers and, with few exceptions, there has been no disposition to buy wool in anticipation of a heavy weight season. Under these conditions the market has been in favor of the buyer, but no material concession in price has been made by owners of wool. Buyers have found it easier to make terms, but have failed in their attempts to hammer prices down. The fact that the 1904 clip will be ready for delivery in a few months has had its effect in making conditions in the wool market what they are. The low grades of wool have been most in demand, the direct result of the conditions in the goods market, where the demand is strongest for low-priced fabrics.

In spite of the adverse conditions which we have referred to there are factors in the situation which are likely to prevent wool prices from going much below the present level. Wool is not high. Forty-six cents for fine medium territory is a fair price under present conditions. Again the limited supply of domestic wool and the duty on wool restrict the supply and give a substantial support to prices on this side of the tariff wall.

While the general business of the country shows signs of slackening there is no occasion for thinking that everything is going to smash. This country includes the most fertile portion of the earth. Natural conditions are in our favor. Prosperity may be interrupted by the unavoidable fluctuations of supply and demand, but is bound to continue.

THEODORE JUSTICE. HENRY JUSTICE.

JUSTICE, BATEMAN & CO.

Wool Commission Merchants,

122 South Front St., PHILADELPHIA.

STANDARD QUALITY COMBED RAMIE TOPS and NOILS a Specialty. RAMIE YARNS in All Numbers for All Purposes

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WOOL, TOPS, NOILS, YARNS,

Fine, Medium and Coarse Wool Tops. Mohair Tops. Camel Hair Tops. Fine, Medium and Coarse Wool Noils. Mohair Noils. Camel Hair Noils. Silk Noils.

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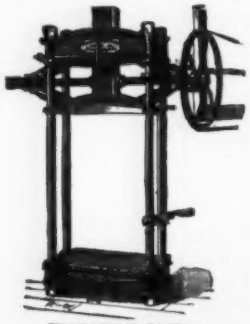

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Any Size .. Any Power

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EASTON AND BURNHAM MACHINE CO.,
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ALL KINDS OF Spindles USED IN THE MANUFACTURE OF COTTON, WOOL & SILK

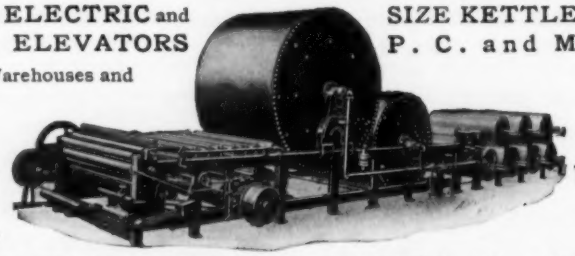
IMPROVED UPRIGHT SPOOLERS
TO SPOOL FROM COP, SKEIN, OR BOBBIN.

The COHOES SLASHER.

BELT-DRIVEN, ELECTRIC and HAND-POWER ELEVATORS
For Cotton Mills, Warehouses and Factories.

PULLEY BLOCKS.

OVERHEAD TRACKS.



SIZE KETTLES. REPAIRS for P. C. and M. MULES and EMPIRE LOOMS.

WATERWHEEL GOVERNORS.

The COHOES IRON FOUNDRY & MACHINE CO, Cohoes, N. Y.

For 25 YEARS We have held OUR REPUTATION as Progressive Manufacturers. Do not forget this when ordering GAGES.

ORIGINAL SINGLE BELL CHIME WHISTLE
Harmonious
Far Reaching
Pleasing.

A Truthful Gage is the only GOOD GAGE.

This Company manufactures, besides the above a large variety of articles used in connection with steam engines and boilers, all of which are standard quality, and may be relied upon. *Send for Catalogue.*

CROSBY STEAM GAGE & VALVE CO.

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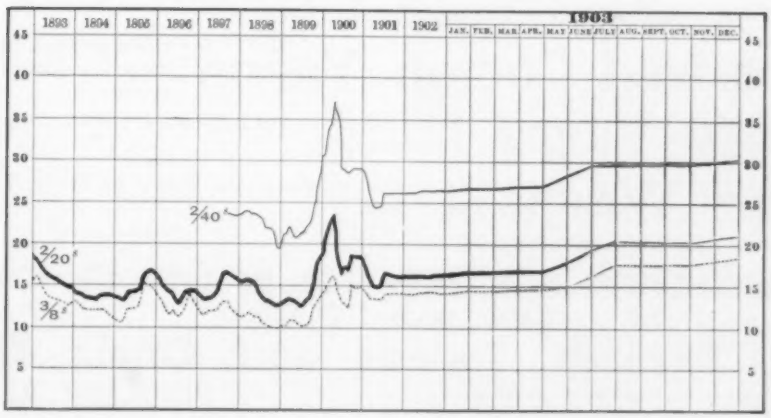
Yarn Department.



GRAPHIC CHART SHOWING RANGE OF PRICE OF COTTON YARN TO DATE.

The Cotton Yarn Market.

The advance of raw cotton has spread demoralization throughout the yarn market and the quotations we give are for spot delivery only. Spinners are unwilling to make future contracts at the present price of yarn, and on the other hand buyers are likewise disinclined to base future contracts upon the permanence of the present high level for the raw material.

Knitters and weavers have found it impossible to secure an advance on their goods corresponding to the rise in the price of yarn and raw cotton. As a consequence there is general talk of curtailment of production till such time as the balance is restored between the cost and selling price of manufactured goods. It is evident that if cotton is to remain at the present high price goods must be advanced materially. The general practice of substituting lower grades of goods in order to make up for the advance in cost of raw material is not available now owing to the extreme advance which has taken place in raw cotton, and the buyers of finished goods will be compelled to pay more for their merchandise. In the present situation it is difficult to make any forecast for the future owing to the rapid fluctuations on raw cotton and the stubborn resistance offered by buyers of goods to any advance on goods. The following quotations are nominal:

Eastern Cops.

6's	20¼
8's	20¾
10's	21¼
14's	22¼
16's	23
22's	24½
24's	25
26's	25½
30's	26½
34's	27½
36's	28½
40's	29½

On cones, ¾c. more up to 14's; 1c. more from 15's to 22's; 1½c. from 23's to 35's, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler.

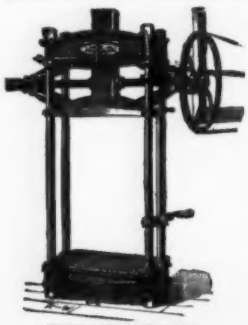
12's	23
14's	23½
18's	24½
20's	25
22's	25½
26's	26½
28's	27½
30's	28½
36's	29½
40's	32
45's	35
50's	37
55's	41
60's	47

Eastern Two-Ply Warps, Carded Peeler.

2/30's	29-30
2/36's	31-32
2/40's	32-33
2/45's	35-36
2/50's	37-38
2/60's	47-48

Egyptian Weaving Yarns.
Single Skeins Combed.

30's	38
35's	40



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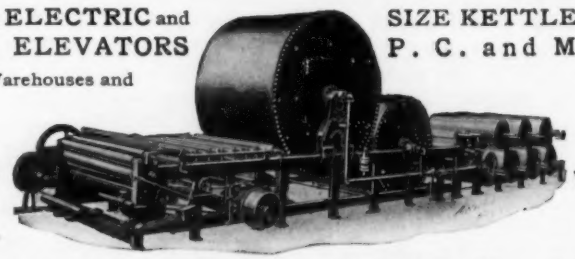

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A Truthful Gage is the only GOOD GAGE.

This Company manufactures, besides the above a large variety of articles used in connection with steam engines and boilers, all of which are standard quality, and may be relied upon. *Send for Catalogue.*

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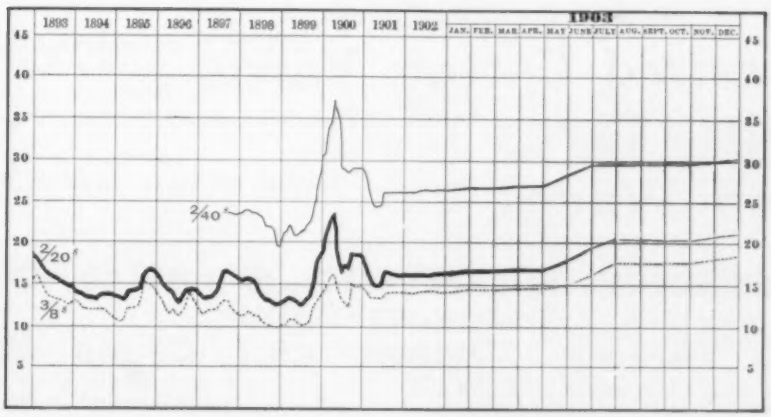
Office and Works: BOSTON, MASS.

Yarn Department.



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Egyptian Weaving Yarns.
Single Skeins Combed.

30's	38
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Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

GREENE & DANIELS MFG. CO.,

COMBED, CARDED AND GASSED

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Colored and Bleached Yarns Furnished in any manner desired by the trade.

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Banding made from Egyptian or White Cotton Yarn as Desired.

The Other Fellows Banding.

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Manufacturers of

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COTTON WARPS

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4s to 60s.

Dana Warp Mills

WESTBROOK, ... MAINE

White and Colored Warps 6s to 50s Single and Ply

Mule Cops From 30s to 50s from American & Egyptian Cotton

40's	42
45's	43½
50's	45½
55's	51
60's	55½
70's	59½

Two and Three Ply Skeins, Combed.

30's	39
36's	42
40's	44
45's	50
50's	53½
55's	55
60's	59½
70's	67

The Philadelphia Yarn Market.

The cotton yarn market has had another boom similar to the one in the winter of 1900 and 1901. Prices have been going up in an almost unprecedented way. The market has been very active and sellers have had complete control. Prices today are at a point at which yarns cannot be used profitably by manufacturers in regular lines of cotton goods, as an adequate advance cannot be obtained on cloth or knit goods.

The demand for yarn has been good enough to keep spinners sold up for prompt delivery, but we doubt if many mills have large orders at present prices, for future delivery. There is a general talk of curtailment of production by knitters and weavers. The speculators have such complete control of the cotton market that it is unsafe and impracticable to take any big chance on the market either way, and on a market like this, long time contracts are undesirable. Cotton will probably be high the rest of the year, but some yarns are quoted today out of proportion to the cotton market, and as soon as there is any cessation in the demand, prices will have to be readjusted. Weaving yarns are selling on a higher basis than knitting yarns.

Prices on Egyptian yarns have not advanced as much as on peeler, as the demand has not been as good on this class of yarn.

The prices quoted are such as can be obtained today for spot delivery.

Southern frame cones (good quality):—

7's and coarser	20½
8's and 9's	20¾
10's	21
12's	21½

MOELLER & LITTAUER,
SILK, WORSTED, WOOLEN YARNS COTTON AND MOHAIR
Polished Threads and Tinsel. Artificial or Wood Silk. Mercerized, Turkey-Red, Embroidery Yarns.
109 GREENE ST., NEW YORK.

BUCKINGHAM, PAULSON & CO.
Commission Merchants
COTTON YARNS of all Descriptions
83 LEONARD STREET, NEW YORK
302 Chestnut St., Phila. 210 Munroe St., Chicago, Ill.
Cash Advances, Cash Sales and Prompt Returns. Consignments and correspondence solicited.

JAMES E. MITCHELL & CO., COMMISSION MERCHANTS.
Cotton Yarns
FOR ALL PURPOSES.
122-124 Chestnut Street, PHILADELPHIA, PA.
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Yarns.
67 CHAUNCY STREET, BOSTON.
216 CHURCH STREET, NEW YORK.
306 CHESTNUT STREET, PHILADELPHIA.

Ballou Yarn Co.
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Harness and Seine Twines and other Job Gassing, Winding, etc. All Numbers.
GASSED YARN SPECIALTIES

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With FRED'K VIETOR & ACHELIS,
YARNS.
66-72 LEONARD STREET, - NEW YORK.

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530 Broadway, - NEW YORK.
MERCERIZED TURKEY RED GASSED } COTTON YARNS.
Ramie Yarns for Knitting or Weaving.

J. S. DODDS,
346 Broadway, N. Y. Life Bldg., New York, N. Y.
MERCERIZED YARNS
Two and Three Ply, for all purposes,
In Peeler, Egyptian and Sea Island, gassed and ungassed, natural and dyed. Fast Black for cross dyeing a specialty.

EDDY & STREET,
Cotton, Woolen,
Yarns and Braids
Worsted, Spun Silk.
PROVIDENCE, R. I.

CAPACITY, 50,000 Spindles. **ORSWELL MILLS** FITCHBURG, MASS.

COMBED **COTTON YARNS** CARDED

In Chains and Skeins, on Balls, Beams, Spools—Single or Twisted.

THE MALCOLM MILLS CO.,

MANUFACTURERS OF

FANCY YARNS and POLISHED THREADS.

Offices: 229 Chestnut St., Philadelphia.

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KROUT & FITE MANUFACTURING CO.,

Manufacturers of

Silk, Cotton and Mercerized Narrow Fabrics

Spool Tapes a Specialty.

Telephone Connection. Office and Mill, Allegheny Ave. and Emerald St., PHILADELPIA.

FIRE HOSE CORDS From long staple cotton—6s to 20s yarn in 2 to 100 ply—16 lbs. without a knot.

COTTON WARPS On beams—single or ply yarns, grey, bleached or colored.

GLAZED YARNS All plys—any color—for braiders, harness and sewing threads.

UNIVERSAL WIND For braider cops—warp yarns—grey or colored—2 inch to 12 inch traverse.

Dyeing facilities are new and best quality work guaranteed. We are prepared to dye yarns for other parties.

WHITTIER MILLS, Chattahoochee, Fulton County, Ga.

Indian Orchard Company
Cotton Warps and Yarns, In Gray and all Colors, Single or two or more Ply, and Cable Cord.
Novelty Yarns, in Various Patterns, Colors and Twists.
Carded and Colored Cotton, For Mixing with wool, Machined or in Roving.
Indian Orchard, Mass.

14's	22
16's	22½
18's	23
20's	23½-24
22's	24-24½
24's	24½-25
26's	26
30's	27
40's	31-32
50's	37-38

Southern high grade mule yarn:—

Cones.

10's	22
12's	22½
14's	23
16's	23½
18's	24
20's and 22's	24½-25
24's	26

Southern frame yarn, lower grades:—

6's and 8's	20
10's	20½

Eastern cones (high grade quality):—

10's	22½
12's	23
14's	23½
16's	24
18's	24½
20's and 22's	25-26

Lower grades Eastern yarn:—

6's and 8's	20½
10's	21

Rise ¼c. per number to 16's.

Skein yarn (mostly Southern):—

4's to 8's soft	20-20½
10's to 12's	21-21½
14's to 20's	22-23
22's	23½
14/2	22-22½
16/2	23
20/2	24-24½
30/2	27-28
40/2	31-32
16/3 slack	22-22½
12/3 slack	21½-22
8/3 carpet	20
8/3 slack	20
9/4 slack	20

Warps (mostly Southern):—

20's to 22's	23-24
26's	24½-25
14/2	23
16/2	23½
20/2	24½-25
24/2	25½-26
30/2	27-28
40/2	31-32

Mixed colored yarns (mock twist, half colors):—

6's to 10's	23
12's to 14's	23½-24
16's to 18's	24½-26

Silver and jaeger, 1½c. over white.
Mock Egyptian, 2c. advance over white.
Egyptian, 4c. to 5c. above best quality white.

TRY OUR
Silkine, also Lisle Silk
FINISH
—FOR—
Hosiery, Knit Goods, Yarn, Fast Black, Harsh Colors, and Fibres.
O. K. SOAP CO., 968 Franklin St., PHILA.

RICHARD A. BLYTHE,
Commission Merchant,
COTTON YARNS OF EVERY DESCRIPTION.
114 Chestnut St., Philadelphia.

LINEN YARN IMPORTER.
HUGHES FAWCETT, 115 Franklin Street, NEW YORK.
Flax, Hemp and Jute Line and Tow Yarns, For Weaving Purposes.
Linen Jacquard Harness Twines,
Fine Cotton Harness and Heddle Twines,
For Cotton, Silk, Woolen and Carpet Manufacturers.
Correspondence solicited. Samples promptly furnished.

Mercerized and Plain
Skein, Warps, Cones, Cops, Tubes
COTTON YARNS
426 and 428 Market St., Phila.
Theo. H. Strouse & Co.

DEXTER YARN CO.
Cotton Yarns in Cops, Cones and Skeins; on Beams or Spools, Single and Twisted, Cable Cords and Twines.
PAWTUCKET, . . R. I.

Walcott & Campbell Spinning Co.
Fancy Hosiery Yarns
IN ALL COLORS
New York Mills, Oneida Co., New York

ALLEGHENY WORSTED MILLS,

Thomas Wolstenho'me Sons & Co.,
MANFRS. OF
ALL NUMBERS
SINGLE AND TWO-PLY,
On Cop or in Skein, for Weaving and Knitting Purposes, in White, Natural and Fancy Mixes.

Worsted
YARNS
Sell Direct,
Office and Mills, Frankford Ave. and Westmoreland St., Phila, Pa.

POCASSET WORSTED COMPANY,

Worsted Yarns.

OFFICES:
6th Floor, Banigan Building.
PROVIDENCE, R. I.

CRANSTON WORSTED MILLS.

Worsted and Mohair Yarns—White or colors, in skeins, on spools, cones, or shuttle bobbins.

Novelty Yarns—of Mohair and Worsted. We are the only manufacturers in the United States making these yarns from the raw material to finished product and making yarns only.

Genapped Yarns of all kinds. Doup Yarns. Harness Yarns. For Braids, etc.

DYERS OF YARN AND SLUBBING. BRISTOL, R. I.

French System. **B. F. BOYER CO.,** Bradford System.
MANUFACTURERS OF
WORSTED AND WOOLEN YARNS,
Office and Mill, Delaware and Cooper Streets. CAMDEN, N. J.

RICHARD CAMPION,

Selling Agent for
BRISTOL WORSTED MILLS,
HIGHLAND WORSTED MILLS.

Worsted Yarns

ALL QUALITIES AND NUMBERS.
17 Bank Street,
PHILADELPHIA, .. PA.

YARNS

Solis, Boston.
77
SUMMER STREET.
ANDREW J. SOLIS, Jr. & CO.

TRADE MARK E-G YARNS CLOTH

ENGLISH-GREENE CO.

Commission Merchants,
Greene Bldg., 26 Fountain St., Prov., R.I.
72 Leonard St., New York.
300 Chestnut St., Phila.
Consignments Solicited for Southern Mills. Liberal Advances Made and Sales Cashed Promptly.

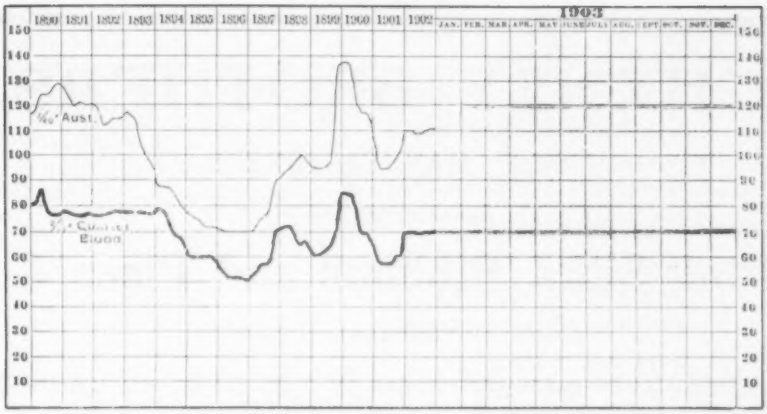


CHART SHOWING RANGES OF PRICE OF WORSTED YARNS.

Worsted Yarn.

Spinners are not busy and salesmen are working hard for orders, most of the business being secured is taken at a loss to the spinner. It may be interesting to know just how the spinners feel regarding business and this can be best gauged by actual correspondence:

Letter No. 1—"In reply to yours we will accept your order at —— price—and this order will run us until February. We are obliged to accept this order or let our machinery stand. In view of the strong wool market we will not offer any more yarn for sale until latter part January, when we hope business will be much improved, as 3/8 Blood wool is scarce, whereas we are selling yarn for less money than last year when the wool market was much lower."

Letter No. 2—"With reference to the order you are talking about, we should get price; even that is low on the wool market today. It might be well to impress your customers with the fact that they have had yarn at less than cost since last summer and now we are merely getting a new dollar for an old one. If you want to convince yourself, look at the market."

Letter No. 3—"We could not name you anything better than the prices talked and we will not be at all surprised to see quotations advance after first of the year. We know that some spinners are making lower quotations, but they are working at a loss."

SILK NOILS AND SILK NOIL YARNS
In White and Colors.
A. T. SKERRY & CO., 47 Leonard Street, NEW YORK.

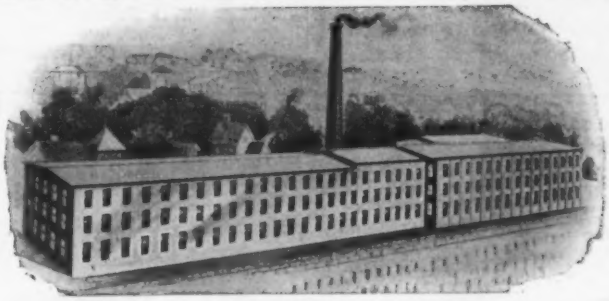
MOHAIR LOOPS, KNOTS AND FANCY YARNS FOR DRESS GOODS & CLOAKINGS.

QUEENSBURY MILLS WORCESTER MASS.

MOHAIR TOPS AND YARNS FOR WEAVING

LUSTRE YARNS FOR SERGE LININGS

ALPACA YARNS



SPINNERS OF MOHAIR YARNS FOR ZIBELINES

DRESS GOODS YARNS
KNITTING YARNS
WORSTED YARNS

MOHAIR

CHENEY BROTHERS,

SILK MANUFACTURERS,

—ALL KINDS OF—

Knitting Silks, Ribbons and Piece Goods

USED FOR TRIMMING KNIT GOODS.

TRAMS, ORGANZINES and SPUN SILKS, IN THE HANK, OR ON CONES, FOR MANUFACTURERS' USE. SILK FOR SPECIAL PURPOSES MADE TO ORDER.

Mills: SOUTH MANCHESTER and HARTFORD, CONN.

SALESROOMS:

477, 479 and 481 Broome Street, NEW YORK.
929 Chestnut Street, PHILADELPHIA.
79 Chauncy Street, BOSTON.
239 Fifth Avenue, CHICAGO.

WILLIAM RYLE & CO.,

Foreign and Domestic

Spun Silk Yarns and Noils.

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., NEW YORK.

E. C. HARPER,
WORSTED and WOOLEN YARNS,
MERCERIZED COTTON,
395 BROADWAY, TEL. 1020 FRANKLIN NEW YORK.

Speed & Stephenson,
WORSTED and WOOLEN
YARNS
A SPECIALTY.
ALSO TOPS.
170 SUMMER ST., BOSTON.
Long Distance Tel. 4168-2 Main.

Crochet Lace Edgings

Spun Silk, Splicing Yarn, Mercerized Yarns, Cotton Warps, Sewing Threads, Tapes, Braids, Domets, Cambrics, Silesias. : : :

Write for Prices and Samples. George W. Chapin 229-231 Church St. PHILADELPHIA

Other spinners are anxious for business and although they have orders which will keep them going for some time, yet it is the future which disturbs them. There have been orders placed for French spun yarn, but buyers have not been falling over themselves to place orders. There are many more orders to be placed and judging from the way spinners are after buyers it must be somewhat of an anticipated demand.

One knitter told writer that the spinners were after him "like bees after honey, and the Philadelphia spinners were telephoning for business." The concern in question had placed his order.

We believe after first of the year that many orders will be placed. Some knitters are holding off, and will not buy even though they know that later they will need the yarn as they claim there is no hurry.

A great deal of 2/20's and 2/26's yarn is being bought by the weavers of about a 3/8 quality. This is English spun yarn. All buying is being held up until after the first of the year. The cotton worsteds are out of commission at present as the continued advance in cotton yarn has prevented weavers of men's wear from making prices on this class of cloth. The manufacturers are substituting all worsted hard finished cloth fancies in place of the cotton worsted.

The "salesmen" are calling to the attention of the weavers the fact that all the buying is being left until after the first of the year. None of them appear to fear this. One large buyer of 2/36's told writer that he knew where there was over 100,000 lbs. 2/36's which had been made on speculation, and it is undoubtedly a fact that many of the spinners in order to keep machinery running have made more or less stock yarn. The weavers who have generally bought before the first of the year, this season and on account of losses in buying yarn on speculation last year, have refused to buy one pound of yarn until they know exactly what their requirements are to be; the weavers who did buy made very low offers, in many instances, not expecting them to be accepted, but when accepted were glad to get them because of the low price secured. Yarn salesmen have certainly had a hard time during the past six months. In the worsted cloth end of the business it seems to have been a transitory period—a changing over from one class of fabrics to other styles. The Clay wor-

JENCKES SPINNING CO.,
Formerly E. JENCKES MFG. CO.
Carded and Combed Cotton Yarns for Weavers and Knitters.
Double and Twist Yarns for Woolen Trade.
PAWTUCKET, R. I.

WILLIAM B. CHARLES,
Cotton Yarns,
Cotton Cloth,
Silesia, Sateens,
For the Underwear Trade.
AMSTERDAM, N. Y.

GRANT YARN CO.,
COMBED AND CARDED COTTON.
YARNS 40's and above. AND
FITCHBURG, MASS. WARPS

LUZERNE COTTON YARN CO.,
MERCERIZED YARNS.
Mercerizers, Dyers, Bleachers and Coners,
WILKES-BARRE, PENNA.

American Cotton Yarn Exchange
COMBED and CARDED
COTTON YARNS
From Northern and Southern Mills.
American, Egyptian, Peruvian and Sea Islands.
ARNOLD B. SANFORD, Pres. and Gen. Mgr.
PERCY H. de MAURIAC, Vice President.
OFFICES: 67 Chauncy St., Boston.
240 Chestnut St., Philadelphia.
108 Franklin St., N. Y. with James Talcott.

SOMETHING NEW
Prevents Woolen Goods from Shrinking
Address
Charles H. Heyer
BUSTLETON, ... PENN.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes,
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES.
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.

Woolen and Merino YARNS
Eaton Rapids Woolen Mills,
EATON RAPIDS, MICH.

JOSEPH M. ADAMS CO.
WOOLEN YARNS,
Carpet Backing and Rug Yarns a Specialty.
ARCOLA MILLS,
Main St., foot of Centre St., Manayunk, Phila.

Woolen and Merino Yarns,
1 to 10 Runs, at reasonable prices.
All Wool, Mohair and Wool Spun or Mixed Cotton and Shoddy Yarns, in white, gray, and colors.
Dress Goods Yarns a Specialty.
E. M. ROCKWELL, - - LEOMINSTER, MASS.

Knitting and Weaving YARNS.
Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.
EDWARD S. HYDE,
226 CHESTNUT STREET,
Philadelphia, Pa.

SHODDY WM. H. H. SLACK & BRO., Springfield, Vt.
Carbonized Stock a Specialty. **FLOCKS**

M. B. SCHWAB, Pres. H. RAWITSER, Treas.
ED. GLUECK, Sec. and Gen. Mgr.
RIVERDALE WOOLEN CO., MANUFACTURERS OF
.. Shoddies ..
Of every description. Capacity 7,000,000 pounds per annum.
Custom Carbonizing and Garnetting a Specialty.
New York Office.
140 DUANE STREET. RIVERDALE, NORTHBRIDGE, MASS.

sted is certainly out of date. In its place a rough fancy fabric made from worsted yarn from 2/20's, 2/26's, 2/28's and 2/30's, about 3/8 Blood quality. This is for men's wear.

In dress goods there is a limited demand for 2/36's instead of the heavy demands heretofore.

At present fancy novelty yarn is taking the place of worsted. There is a demand for 1/30 for raincloth yarn, also worsted and cotton, 1/25 to 1/35 twisted with 1/80 to 1/100 cotton. This is being unfavorably affected by the advance in cotton.

The top manufacturers are running, but slowly; prices for fine tops are firm, but most of the combers are running on coarse tops. The present year has been one of disappointment and was caused largely by wool merchants insisting on a great advance in worsted wools. Prices for yarn were forced up to a high figure, and buyers of cloth substituted other and cheaper cloth to take the place of the cloth which was advanced, with the result that business has been stagnant throughout the year and more particularly the latter part.

We quote:

2/40's Australian	1.20
2/40's XX Delaine	1.10
2/40's Half Blood	1.05
2/20's Half Blood	.85
2/36's ⅜ Blood	.75
2/26's ¼ Blood	.68

Woolen Yarn.

Spinners running on commission work continue busy and there is but little machinery available at this time for new business. The manufacturers are buying considerable woolen yarn outside their own mills and will continue to do so throughout the coming season. Most of this business is given by mills who supply their own stock. This comes from overcoat manufacturers, weavers of men's wear and from dress goods manufacturers. The dress goods weavers generally buy their yarn outright, and besides buying straight woolen yarn 1 1/2 to 2 run in colors, buy fancy woolen nub yarn; much silk noil yarn is used and will be used during the coming season by dress goods manufacturers. Camel's hair yarn made from camel's hair noils is being largely called for.

The eiderdown manufacturers are getting ready for a good run after the first of the year and the underwear manufacturers are beginning to figure for their new business. It looks now as though the spinners were going to have another good run.

The men's wear manufacturers are going to buy yarn again the coming season to mix with worsted yarn and thereby reduce the cost of worsted cloth and at the same time get certain effects which are

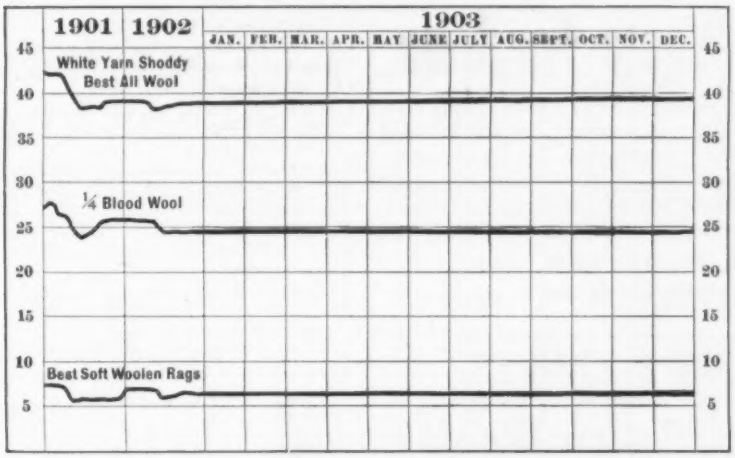


CHART SHOWING RANGE OF PRICES OF SHODDY, RAGS AND NOIL.

impossible to secure otherwise. The hosiery manufacturers are not placing orders for woolen or merino yarn at present, but will order some time during March. There are many new orders pending for other classes of yarn which will be placed after first of the year. Much of the fancy colored yarn for sweaters will not be placed until February or March.

The French flannel business is not on until after February. Some spinners with sale yarn who do no custom work are not busy, but the present is between seasons and it gives these spinners a chance to overhaul machinery and get ready for the new campaign. Some of these spinners have been running 8 and 10 sets of machinery outside their regular business. The outlook for the coming year is fair. Many orders are being held up by the underwear trade until after first of the year. The underwear trade is lightly stocked both as to yarn and wool. The cotton question is a factor this year with them and many believing that cotton would be lower did not place orders.

Peruvian cotton, although higher than last year, is within reach of the knitters who can make prices for their next season's orders at fair values. Many of the knitters who used cotton mule spun yarn in connection with their woolen yarn are running on other samples.

The underwear trade is in a curious condition; buyers are decidedly "misty" as to values. One manufacturer told writer that he was selling two lines—side by side. One garment shows him a loss at the price he sells it. The other a profit and a big profit, and yet the bulk of his orders are on the profitable garment.

The knitters next season will get back on Australian lamb's wool at prices which will range from 72 to 73 cts. per pound. Australian thread waste will range from 57 to 60 cts. per pound. Domestic threads will be scarce, giving foreign threads the call. After the first of the year there must be considerable buying provided values are not advanced, but mills certainly have small supplies.

Rag and Shoddy Market.

While the volume of business has been small and prices have remained unsatisfactory, there is a hopeful feeling in the trade on account of the approach of the heavy weight season. During the past month there have been several cases in which large orders have been accepted at reduced prices, but as a general thing quotations have remained unchanged. The exceptions are important, but cannot be accepted as the rule. The sales would have been larger had it not been for the uneasiness as to the near future. The general reaction in business throughout the country is making the rag and shoddy trade conservative, and prevented anything that resembles speculation as to future requirements. If a manufacturer sells goods, he then buys stock to cover the orders, and the market has for a long time been in such a state that he has found no difficulty in buying on favorable terms the material he required. This policy may result sometime in the manufacturer being caught short of stock and unable to buy except at a ruinous advance, but this is a chance that he seems quite willing to take at the present time.

Woolen waste is extremely dull; dealers are resting on their oars and letting the mills carry their waste until such time as a demand for it may develop. It is a waiting market and the hand-to-mouth policy is likely to continue until the goods market improves. We quote as follows:

SHODDIES AND EXTRACTS.

White yarn, best all wool	38-40
White knit, all wool, best, fine	28-32
White knit, No. 2	23-25
Light yarn, extra fine	25-28
New pure indigo blue	23-25
Fine worsted, new black	26
New blue clip, best, fine	20-22
Dark mixed yarn, extra fine	22-24
All wool yarn, medium and coarse grades	15-20

Merino.

Fine light, all wool, No. 1	24-25
Medium light, all wool, No. 1	16½-17½
Medium light, all wool, No. 2	14-16
Fine black, all wool	20-22

Cotton Waste For Sale.

Have large lines of Soiled Card, white and colored Oily Card and other Cotton Wastes suitable for the manufacture of Cassimeres, Satinets, Unions, etc. Also Combers and other clean Cotton Wastes for Hosiery, Underwear, etc.

CHAS. W. BECKER, Agt.,
Amsterdam, N. Y.
Address Dept. 7.

WILLIAM B. CHARLES,

Cotton and Cotton Wastes

Amsterdam, N. Y., U. S. A.

COTTON YARNS.

Contracts made with Cotton and Woolen Mills for Yearly Waste Production. Correspondence solicited. Shepperson's Code, 1878. Cable Address "Charles."

Fine dark, all wool, best grade	20-21
Medium dark, all wool, No. 1	13-15
Medium dark, all wool, No. 2	12-13
Red knit stock, strictly all wool	19-20
Red flannel, all wool	19-20
Dark blue for hosiery, strictly all wool, No. 1	17-20
Dark blue for hosiery, not all wool, No. 2	12-14
DELAINE EXTRACTS.	
Light	19-22
Medium light	15-17
WOOLEN RAGS.	
Regular gray	12-13
Black	14-15
Fancy colors	16-20
Fine merchant tailors, all colors	9-11
Choice light colors	13-15
Browns	12-13
Blacks	9½-10½
Fine blues, plain	9-11
Fine dark	10-11
Medium dark	7-8
Worsteds.	
Blue	16-18
Black	18-20
We quote as follows:	
Serges.	
New black	15-16
New blue	14-15
Flannels.	
New scarlet	18½-22
New blue	17-18
Cloakings	3-4
SOFTS AND KNIT STOCK.	
Soft woolens, best	7-7½
Old white flannels	14-16
White flannels, No. 2	11-12
Old red flannels	9½-10
Light blue flannels	7½-9
Old blue flannels	6-7
Old plaids	5-7
White stockings	17-18
White hood stock	20-21
Clear hoods	9-10
Red stockings	9-10
Blue stockings	7-8
Fancy stockings, No. 1	7-9
Gray stockings	9-10
Black stockings	9-10
Knit stock comforters	6-7½
Red knit	9-10
Light gray knit	9-10
New light fancies	16-18
New fancies	12-14
Merinos.	
Light, fine	13½-15
Light, coarse	7½-8
Fine, dark	12-13
Dark, No. 2	5-6½
Coarse dark	4-4½
Blue	12-13
Blue—seamed	13-14
Black—unseamed	12-13
New black	18-20
Small	3¼-4
Bunting	6-8
FLOCKS.	
Shear, fine white, all wool	9-11
Fine indigo blue, all wool	9-9½
Fine black, and blue, all wool	7-8
Fine dark, all wool	5-6
Gig, fine, all wool	3-4
No. 1, black, all wool cut	6-7
All wool, fancy, shear and gig	2½-3½
COTTON WASTE.	
No. 1 Spinners	7½-8
No. 1 Machine	6½-7
No. 2 Machine	5-5¾
Machine Cop	7-7¼
No. 1 Cop	7-7½
No. 1 Card	8-9
No. 2 Card	7-8
No. 1 Oily Card	4-4½
No. 2 Oily Card	3½-4
Egyptian Card	None in the market
Peeler Combing	10½-10¾
Egyptian Combing (scarce)	None in the market
No. 1 Linters	6-6½
No. 2 Linters	5½-6
White Clips	5½-6
Colored Clips	4-5
No. 1 Picker	2-3½
NOILS.	
Australian	48-50
Fine domestic	38-40
½ Blood	24-28
⅜ Blood	22-23
¼ Blood	17-19
Braid	21-22
Carpet (white)	14-18
Carpet (colored)	10-12½
Seedy.	
½ Blood	35-37
⅜ Blood	27-30
¼ Blood	23-26

FIRTH & FOSTER CO.,

Dyers and Finishers of Dress Goods, Men's Wear and Cloakings, such as Venetians, Armures, Soleils, Crepons, also Silk Warp Fabrics, Cotton Warp Linings, Suitings, Clays, Serges, Worsted Damasks, Tapestries and Shirtings.

Particular attention given to Fast Colors on Cotton and Worsted Yarns, Slubbing and Stock Dyeing. Special Black for the Silk Trade on Fine Cotton Yarns.

MAIN OFFICE AND WORKS:

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NEW YORK OFFICE: Silk Exchange, 487 BROADWAY.

TURKEY RED AND FAST BLACKS A SPECIALTY.

W. M. DREXLER & CO.,

Worth and Granite Sts., Frankford, Phila.

FANCY COLORS on COTTON YARNS

MARYLAND BLEACH AND DYE WORKS,

BALTIMORE, MD.

BLEACHING, DYEING and MERCERIZING of all grades of Cotton Yarn,

GUARANTEED FAST COLORS.

Direct, Sulphur and Oxidized Black, Fast and Stainless Colors on Merino Yarn.

TUBING: Universal and Foster: CONING.

Prompt and Careful Attention Given to all Orders.

SAVOGRAN

Cleans Wool, Floors, Anything.

INDIA ALKALI WORKS, Boston.

Established 1868.

AMOS H. HALL, SON & CO.,

Manufacturers of

Cedar Vats and Tanks

2915-2933 North Second Street,

PHILADELPHIA, PA.

Tubs and Tanks of all kinds for Dyers, Bleachers, Factories, etc.

Down Town Office, 140 Chestnut Street, Corner Second.

Hours from 12 to 1.

Established 1898. Capital $150,000. Incorporated 1903.

THE COOPER MERC. CO.,

COVENTRY, R. I.

Exclusive Trade Mercerizers, Cassers, Dyers and Bleachers of Cotton Warps and Yarns.

Highest Lustre, Permanent Soft Finish, at Lowest Market Prices Guaranteed.

CONING AND WINDING. WE SOLICIT A TRIAL ORDER.

The WM. H. LORIMER'S SONS CO.,

Manufacturers of

MERCERIZED YARNS

FOR ALL PURPOSES.

MERCERIZERS AND DYERS.

New York Office:
Room 911 New York Life Building,
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PHILADELPHIA, PA.

R. GREENWOOD & BAULT,

DYERS, BLEACHERS AND **MERCERIZERS**

OF COTTON WARPS AND SKEIN YARNS.

Globe Bleach and Dye Works,
Oxford and Worth Sts., Frankford. Pa.

140 Chestnut Street, PHILADELPHIA.

THEODORE C. SEARCH, Pres. O. W. WHITE, Treas

THE COLD SPRING BLEACHERY

YARDLEY, PA.

FINE COTTON GOODS A SPECIALTY

We are Dyers of all kinds of YARNS Cotton AND Warps

We are sure we can give you better work and better service that you can get elsewhere. A trial will convince.

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WE DO BLEACHING and DYEING

ESPECIALLY FOR THE **KNIT GOODS TRADE.**

YARNS BLEACHED AND DYED (delivered on cones).
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COTTON SOFTENERS

"VELVETINE" "OLIVENE" and "IDEAL" Brands.

DYERS OF HOSIERY, HOSIERY YARNS, SIZERS OF WARPS, FINISHERS OF COTTON PIECE GOODS, MERCERIZERS, etc., will do well to correspond with us on our SOFTENERS, now largely in use, and pronounced absolutely the

BEST ON THE MARKET.

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LOOS & DILWORTH, MANUFACTURERS OF LUBRICATING AND TEXTILE OILS AND SPECIALTIES,
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PENNYPACK YARN FINISHING CO.,
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Mercerizers, Bleachers, Dyers and Coners of Yarns.
Correspondence Solicited.

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BLEACHERS AND FINISHERS
Correspondence Solicited. OF ALL CLASSES OF LINEN GOODS. Toweling and Damasks a Specialty. Telephone Connection.

Do you Know THAT **JOHN F. DAVIDSON**
Does the Best Bleaching at the Most Reasonable Rates?
TURKISH TOWELS, SKEIN YARN, TAPE, UNDERWEAR.
Send us a sample, we will show results and quote prices.
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SEND YOUR YARNS TO US TO
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Our process insures Strength, Brilliancy, and Perfect Condition.
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DYERS AND BLEACHERS OF COTTON YARNS,
Fast Colors for the Woolen Trade. Capacity 20,000 lbs. per day.
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KEYSTONE
Fast Black Dye Works
HOSIERY DYEING A SPECIALTY.
1929 to 1939 E. Westmoreland St., Philadelphia.
JOHN BOSTON, Proprietor.

Pawtucket Dyeing and Bleaching Co.
Bleachers and Dyers of COTTON YARNS and STOCKINET
Office with Blodgett & Orswell Co., Manufacturers of Glazed Yarns.
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INCRAHAMVILLE DYE WORKS,
Dyers and Bleachers of Cotton Yarns in long or Short Chain Warps and Skein, in FAST COLORS, FOR BLEACHING PURPOSES, Cross Dyeing, Ginghams, Etc.
Also Dyers of Turkey Reds and Indigo Blues for all purposes in either Warp or Skein.
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TETRAZO SULPHUR BLACKS

are the most concentrated and HIGHLY PERFECTED Sulphur Blacks on the market. They dye in ONE OPERATION, producing UNIFORM results, and giving most satisfactory shades of DEEP BLACK, which are FAST to even EXTREME requirements.

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Fast Colors for Wool and Cotton.
Full Line of Direct Cotton Colors.

THIOPHENOL BLACK T EXTRA and 2 B EXTRA.
PYROGEN BLUE R. . . . .
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} Direct Sulphur Colors, Faster than Indigo, to light and washing.

Chrome Fast Black F & R, Benzyl Blue and Blue B W. Fast Colors for Wool.

Headquarters for Caustic Potash 90%. Carbonate of Potash. Chlorate of Potash and Soda. Tannic Acid. Bleaching Powder.

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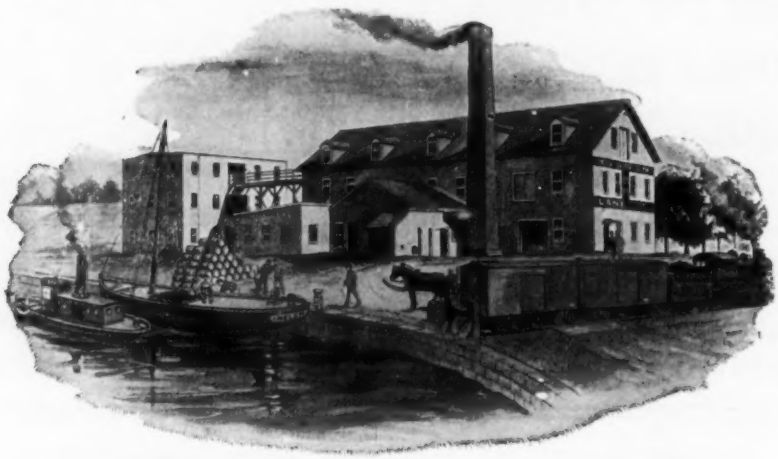

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B. & L. ANTI-CHLORINE (ultra bleaching process.)
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BI-SULPHITE OF SODA.
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AN EXCELLENT SUBSTITUTE FOR INDIGO ON COTTON IS

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MOLT BROTHERS,

MANUFACTURERS OF

INDIGO BLUE DYE

ALSO DYERS OF WOOL AND STOCK, YARN AND PIECES, UNIONS, ETC. ALL SHADES. WOOL SCOURING.

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All work done by experienced workmen and guaranteed to give satisfaction.

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AMERICAN BRANCH OF THE

ANILINE COLOR AND EXTRACT WORKS formerly J. R. GEIGY,

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Aniline Colors, Calico Printers' Specialties,

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For all Kinds of Fabrics, Dyeing Perfectly Level Shades. Aniline Colors for Cotton, Wool, Silk, Paper and Leather.

SEND FOR RECIPES, SAMPLES AND PARTICULARS

Manufacturers and sole importers of

Sulphur Black T and Extra 2B

For Raw Cotton, Yarns, Warps and Piece Goods, indestructible by light and acids, absolutely fast to scouring.

ONE OPERATION. NO AFTER-TREATMENT.

LOGWOOD CHIPS ARE GOOD

LOGWOOD EXTRACT IS BETTER

HEMOLIN IS BEST

THE ONLY SATISFACTORY BLACK FOR WOOL SILK OR LEATHER

USED THE SAME AS ANY OTHER PREPARATION OF LOGWOOD.

DO NOT ACCEPT ORDINARY LOGWOOD CRYSTALS AS SUBSTITUTES FOR HEMOLIN

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THE SELLING COMPANY

186 FRONT ST. NEW YORK.

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Autogene Black

A NEW DIRECT DYEING SULPHUR BLACK FOR COTTON

Fast to Light, Air, Alkali, Acid and Strong Soaping. Requiring no fixing with Metallic Salts nor Atmospheric Ageing.

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396 Atlantic Ave., BOSTON. 85 Water St., NEW YORK. 215 Chestnut St., PHILADELPHIA.

Duxbury's English Calender Roll Papers

FOR EMBOSSING AND OTHER CALENDERS.

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PEROXIDE OF SODIUM
BLEACHES
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WITHOUT
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MANUFACTURERS OF

SODA ASH

In all Commercial Tests.

CAUSTIC SODA

All Tests.

Mono-Hydrate Crystals, Snow Flake Crystals,

For Wool Soap and Scouring. For Mercerizing Cotton, Bleaching, Dyeing, etc. For Silk Makers, etc.

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Manufacturers of Pure **LOGWOOD EXTRACTS** SPANISH TOWN, Jamaica, W.I.

DILLON & CO., 20 Cedar St., New York, SOLE AGENTS FOR THE UNITED STATES AND CANADA.

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Sole Agents for the

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Sulphide of Sodium

Purest and Best Made.

Safest to use with the Sulphur Colors.

ROUBAIX WOOL SCOURING SALTS

The best scour for wool in the world.
A perfect solvent of grease in any form, can be used on Raw Wool, Yarns, or Piece Goods.
Does not injure the fibre, and leaves the wool clean, soft and lofty.
Sold entirely on merit. Order a barrel for trial.
Will cost you nothing if unsatisfactory.

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Aniline Colors and Dye Extracts.

New Vilal Black Extra

An Improved Sulphur Black.

THE LATEST NOVELTIES IN DIRECT FAST GREENS

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ANILINE and ALIZARINE COLORS
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Pyrol Blacks, Pyrol Brown, Pyrol Bronze, Pyrol Olive, Pyrol Green, Pyrol Yellow, Pyrol Blue.

New fast one-dip sulphur colors standing acid, alkali, sunlight, etc. No after treatment required.

A FAST FAST-BLACK

I offer to large and important establishments, a process of dyeing fast black on hosiery. It is superior to the best European processes. It is not an experiment—a few of the largest knitters in the U. S. are successfully using it.

WE GUARANTEE

A Deep Shade of Brilliant Blue Black

Guarantee
- An Average Natural Gain of Weight of 10 per cent.
- A Cold Process, insuring Maximum Strength and Softness.
- Quickest, Safest, most Reliable and Cheapest Process, without the Need of Skilled Help to do Perfect Work.

FAST, FAST-BLACK.

Guarantee Fast to Wear.
" " " Exposure, Light, Gas, Etc., Etc.
Guarantee Fast to Perspiration, Acids, Etc.
Guarantee Stainless, no Crocking.
" Free from Lint.
" " " Bleeding, Wash Proof.
Guarantee Strongest Fibre,
" Pure Dye, Free from all Impurities.
Guarantee Unaffected by Repeated Washings.

A Thorough Oxydation, Dyeing Through and Through the Fibre, so Essential to Wearing, and not only on the Surface, Like on Sulphur or other Direct Blacks.

Guarantee Such Uniformity as to Avoid Pairing of Goods at All Times.

CHAS. E. WILD, .. Lansdowne, Pa.

ARABOL MANUFACTURING COMPANY,

100 William Street, New York.

Sizing, Stiffening, Softening and Finishing Compounds, Glues, Gums, Dextrines, Starches, China Clay, Bone Size and Grease, Soap, Tallow, Weighteners,

EVERYTHING IN SIZINGS, Etc. SAMPLES MATCHED. HIGH GRADE GOODS.

Starch, Dextrine, Gum and Glue.

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PAUL BEER,

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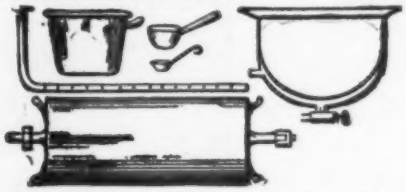

Copper Steam Pipes, Coils, Dippers, Steam Boards and Heavy-Tinned Steam Cylinders,

831 N. Fourth Street, PHILADELPHIA.
Repairing Neatly Done.

The O. & P. Rothe M'f'g and Supply Co., Ltd

DYE AND BLEACH PLANTS

for Hosiery, Underwear and Skein Yarns installed and equipped complete.
Oxidizing, Lisleing and Chroming Machines, Tom-Toms, Bleaching Kiers, Tanks, Vats, etc.
Formulas sold for "Sanitary" Fast Black Colors and Bleaching.

NORRISTOWN, PA.

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Drying and Sulphur House Poles of Natural Round Water Grown Cedar for Cotton, Wool, etc. Special Hardwoods in Standard No. 1 and "Selects" without knots, grades, for Silk Dyeing. Manufactured by, prices and all information from

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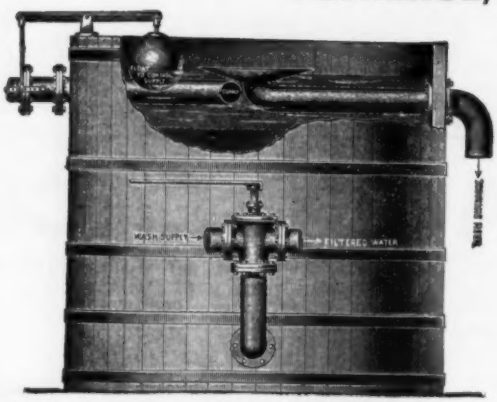
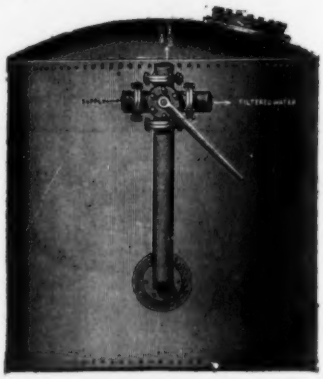




WILSON FILTERS FIRE HYDRANTS

Our filters are already in use in a number of the representative textile mills of the country, from whom we have received many expressions of satisfaction. Our representative will call and explain our system whenever desired.

TAUNTON-NEW BEDFORD COPPER CO.,

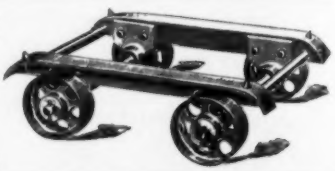
NEW BEDFORD, MASS.

Copper Printing Rollers, Singe Plates and Sheets.

OUR GUARANTEE: { Superior Quality. Prompt Shipments.

Gem Box Truck

YOU CAN'T BEAT OR BREAK IT. Send for sample and if not satisfactory can be returned at our expense. Look at the STEEL POINTS. Write for Prices. Manufactured by



CITY FORGE & IRON WORKS,

424 East First Street. DAYTON, O., U. S. A.

We Build the Best

STEEL TOWERS AND TANKS

For Fire Protection.

DYE TUBS, VATS AND TANKS FOR EVERY PURPOSE.
DRAW LUGS FOR TANK HOOPS.

D. B. STEVENS & CO.,

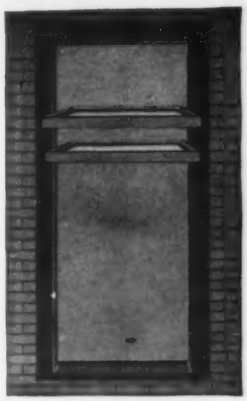
145-147 Turner Street. AUBURN, ME.

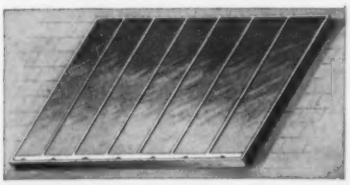
Let us send you our Catalog and Prices.

AUTOMATIC FIRE-PROOF

Patented Metal Window Frames and Sashes.

Positively Prevent Fire From Entering Building. Suitable for Office and Factory. Insurance Reduced to a Minimum. Quick Shipments Guaranteed. Illustrated Catalogue Free.





METAL SKYLIGHTS, CORNICES, FIRE-PROOF DOORS and SHUTTERS. Controlling Apparatus for Monitor-Sash.

DAVID LUPTON'S SONS CO., PHILADELPHIA. NEW YORK.

Perfect Fast Black for Hosiery

The "Dubois' Sanitary" Oxidized Fast Black Dyeing Process with the Lisle Thread Silk Finish, Patented March 17, 1903, and The "Dubois Sanitary" One Dip Fast Black in Powder Form, Leads Them All!

This is the most reliable dyeing formula known to fast black dyers. It has been adopted successfully by many leading mills. It always gives uniform shade, oxidizes well and the fabric is almost as strong as though dyed with direct colors. Most important of all, it gives a fine lisle thread finish without in the least tendering the goods. Beware of cheap fast black formulas, which are sure to be dearer in the end.

The cost of the Dubois black, the best in the market, is very reasonable, as low as $1.40 per 100 pounds dyed in ordinary black for cheap trade, and not over $2.50 per 100 for the very best black for high grade goods, guaranteed to be ungreenable to acid tests and wear. Manufacturers of knit goods, hosiery and job dyers ***take notice*** that I am prepared to give licenses with full instructions for producing lisle thread finish (processes patented March, 1903) on any kind of direct colors or fast black, either before or after dyeing or bleaching.

Sulphur and diamine blacks particularly are so much improved after having been lisled by my patented process that they look just as well as aniline oxidized fast black, and yarn costing 17 1-2 cents per pound will produce as fine a looking fabric treated by my process as the genuine lisle thread at a cost of 34 cents per pound. This is a boon for direct color job dyers and bleachers, as well as for manufacturers of hosiery and knit goods.

The license will be given on a small royalty per 100 pounds.

All the machines used for the fast black and lisle thread finish, also for giving lisle thread finish to direct colors on bleached or unbleached goods are of my own invention, and are

PATENTED AS FOLLOWS:

June 18, 1901. Rotary oxidizing apparatus. The only machine in the world that carries the goods while oxidizing and lisling at all points of the compass. Quickest oxidizer known.

September 9, 1902. Rotary yarn oxidizing apparatus. Also carries the yarn at all points of the compass while in process of oxidizing or steaming.

June 10, 1902. A stationary hosiery oxidizing apparatus. Two different speeds. Especially constructed for lisle thread finish on hosiery or knit goods, equipped with an electric thermometer for the accurate measurement of the dry and wet hot air.

December 10, 1900. Stationary hosiery oxidizing apparatus. Two speeds. Chain and sprocket wheel drive with double clutch to start and stop. Very strong for heavy work, also built for lisle thread finish.

ALSO NOTICE: - That My One Dip Sanitary Fast Black in Powder Form is the same black as the Sanitary Oxidize Fast Black Process mentioned at the head of this advertisement, and is a long felt want among the trade, particularly for small concerns whose production would not warrant the equipping of an Oxidize Fast Black Dyeing plant.

This One Dip Sanitary Fast Black is dyed in the open ordinary dye tub at boiling heat in one hour, then washed and softened, if desired, as is done with all other direct colors for cotton hosiery, and has the advantage on the other direct blacks to allow the production of any shade desired from a jet to a very blue black, and matching well the oxidized aniline black.

The cost per 100 pounds hosiery dyed with this black is from $3.50 to $3.80 according to amount of softener used.

This One Dip Sanitary Black is positively guaranteed to be ungreenable to acid test and wear and leave the fabrics as strong after dyeing as it was in the white.

The apparatus required to start dyeing are but two ordinary wood dyer's tubs and one hydro-extractor.

Those wishing to put on their goods so dyed my "Lisle Thread Finish" (Patented) can do so by simply adding to above apparatus one or more of my "Stationary Oxidizing Machines" (Patented June 10, 1902), and take out a license for the use of my patent for lisle thread finish on vegetable fabrics, which will be given free of charge, and all you will have to pay for the use of the machine and the lisle thread finish process, will be but a small royalty for each 100 pounds hosiery given the lisle thread finish.

Dyers and manufacturers that are far away may procure a license with full instructions for building the machines economically, paying a small royalty for the use. I have made the royalties low, so that ***no one may be debarred by reason of the price,*** but I mean to protect my patents and will vigorously prosecute any who infringe.

Fast black dye and bleach plants for hosiery, underwear and skein fast black yarn dyeing, installed and equipped complete, if desired. Apply to

A. N. DUBOIS, 2170 Sedgeley Ave., Phila., Pa. or **KEYSTONE LAW and PATENT CO.,** Betz Bldg., So. Broad and Market Sts., Phila., Pa.

BARNEY VENTILATING FAN WORKS

ALBERT B. FRANKLIN, PROPRIETOR

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165-7 FORT HILL SQUARE
BOSTON, MASS.

FANS

FOR REMOVAL OF

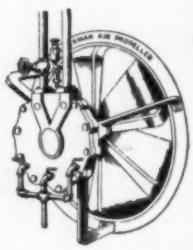
DUST, HEAT, ODORS, STEAM, SMOKE, MOISTURE AND GASES, AND FOR ALL SORTS OF . . . . . .

VENTILATION

MILLS, DYE HOUSES, SCHOOLS, THEATRES, ETC.

Blackman Fans

With Direct Connected Engines.



ECONOMICAL FIRST COST OPERATION

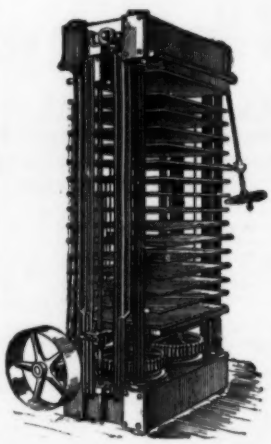
Can be run at any speed and any time. No long shafting and belts to waste power.

For Dye Rooms, Factories, Boiler Rooms, or where there is moisture or dust they are the best apparatus ever installed.

E. M. NICHOLS,

639 Arch St., - PHILADELPHIA, PA.

Write for particulars.



Reliance Hot Plate Press

For Hosiery and Underwear Trade.

For price and particulars address

CHARLES HART

Hedge and Brown Sts., Frankford, Phila., Pa.

THE G. DROUVÉ CO.

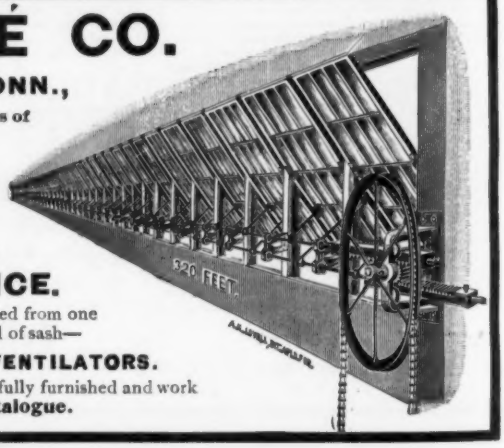
BRIDGEPORT, CONN.,

Manufacturers and Erectors of

SHEET METAL ARCHITECTURAL WORK.

Sole Manufacturers of

THE LOVELL WINDOW AND SHUTTER OPENING DEVICE.



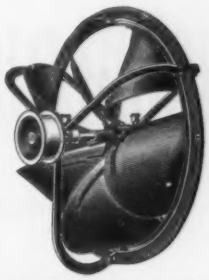
A line of sash 500 feet long can be operated from one station if desired. Adapted to any kind of sash—

SKYLIGHTS, CORNICES, VENTILATORS.

Correspondence solicited. Estimates cheerfully furnished and work guaranteed. **Send for Catalogue.**

We Admit it IS Remarkable

But every word in our new circular about the Berry System applied to Cloth Dryers, etc. is backed up by the mill owners' own statements. Many of these men did not realize that they were not getting the best possible results. You may be in an equally contented frame of mind. If you do not want to be disturbed from your quiet repose, better not read the circular, for it will make you uneasy in your mind until you have found out what we can do with YOUR dryer.



A. HUN BERRY,
23 West First St.,
BOSTON.

OIL stains are a source of unending anxiety and money loss to a textile manufacturer.

It is impossible for Dixon's Pure Flake Graphite to remain in even the most delicate fabrics after washing.

Its use greatly reduces the quantity of oil necessary for a given effect, lessening the tendency of a shaft or pulley to "sling oil."

Samples to the readers of Booklet 120 C.

Joseph Dixon Crucible Co.
Jersey City, N. J.

A. J. BECKLEY CO.

284 Pearl St., New York City.

PERFORATED
SHEET METAL
OF ALL KINDS, FOR ALL USES
FOR COAL, ORE, STONE AND SHAKER SCREENS
JIGS, WASHERS, STAMP BATTERIES, MINING &
SMELTING WORKS, SILVER REDUCTION &
CONCENTRATING WORKS &c &c
GRAIN CLEANING

Perforated Copper

For Wool Scouring, Renser Boxes, Dyeing of Raw Cotton. Duster Screens, Picker Screens.

PERFORATED SCREENS OF ALL KINDS.

Factory, Garwood, New Jersey.

THE CYPRESS LUMBER CO.

TWO BIG FACTORIES.

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NORTHERN
Boston, Mass.

Write Nearest

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SOUTHERN
Apalachicola, Florida.

Write Nearest

LEWIS JONES,

60½ and Media Streets, . . . PHILADELPHIA.

GAS ENGINES for city or country
BRUSHING MACHINERY
KNITTING MACHINERY

} EFFICIENT DURABLE LOW IN PRICE

JOHN W. FERGUSON,

Builder and General Contractor.

MILL BUILDING A SPECIALTY. References made to some of the largest mill owners in the Middle States, including Clark thread Co., Newark, N. J., Barbour Flax Spinning Co., Paterson, N. J., and others.

253 Broadway, N. Y. 90 Washington St., Paterson, N J.

ARE YOU IN NEED OF CUTS

IF SO, NOTIFY—

Smith Bros.

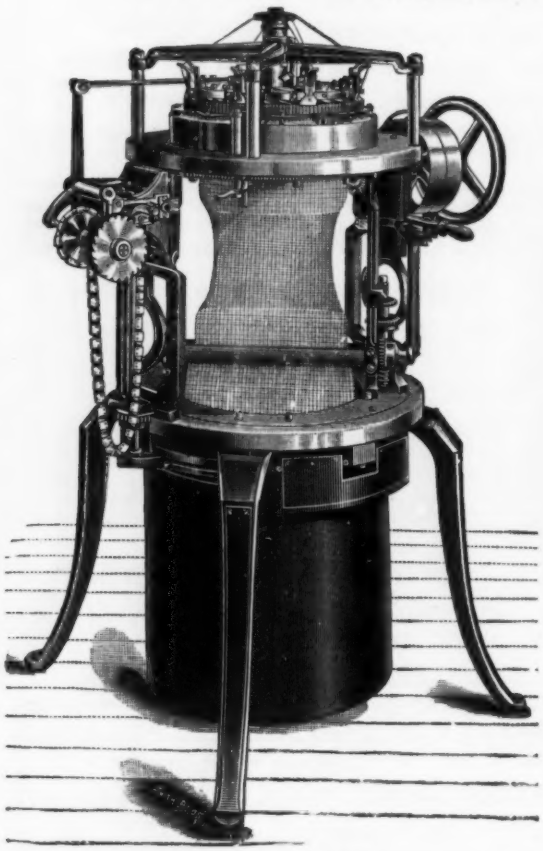
WOOD, ZINC & HALF-TONE ENGRAVING.
KNITTING MACHINERY & ALL KIND OF MECHANICAL WORK OUR SPECIALITY.
119 S. 4th Street
PHILADELPHIA, PA.

McMICHAEL & WILDMAN MFG. CO.

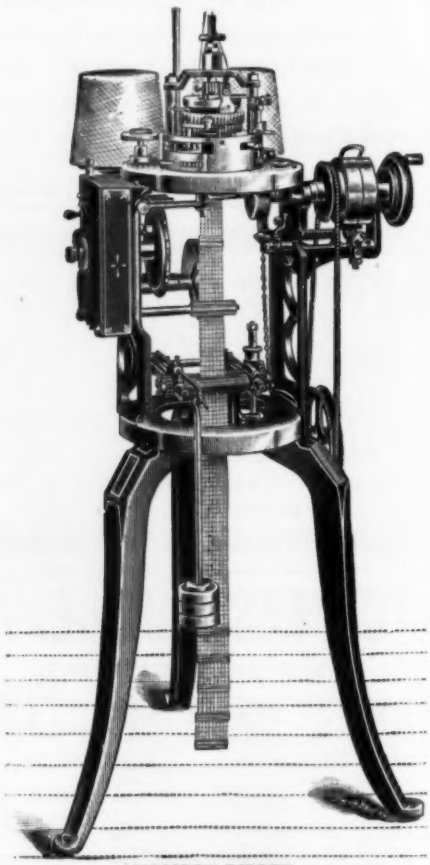
CIRCULAR RIB KNITTING MACHINERY

AUTOMATIC AND PLAIN

For all classes of Ribbed Hosiery and Underwear, Combination Suits, Sweaters, etc.



AUTOMATIC BODY MACHINE.



HOSIERY RIBBER.

ESTABLISHED REPUTATION FOR LARGEST PRODUCTION, BEST QUALITY FABRIC, DURABILITY, ECONOMY OF OPERATION

Full Particulars, Description and Samples Furnished upon Application to the

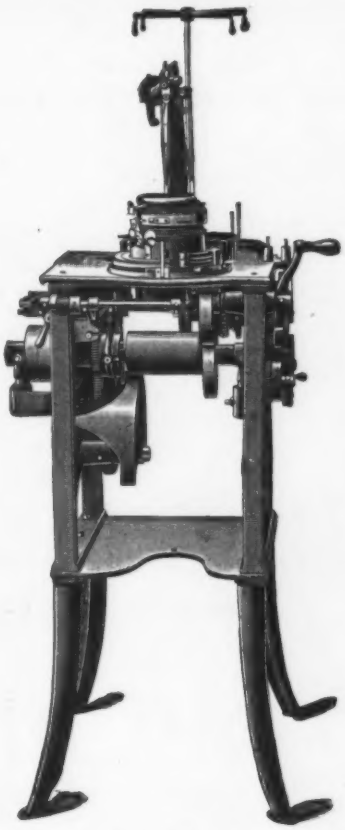
McMICHAEL & WILDMAN MFG. CO.

NORRISTOWN, PENN.

Acme Automatic Knitter

FOR SEAMLESS HOSIERY

ALL KINDS AND GAUGES



Best method of transferring ribbed legs and tops.

Greatest production of perfect work at least cost.

All latest attachments and improvements.

Our new type of machine, just out, having absolutely positive feed on pattern mechanism, which is set by dial, and graduated disc when changing styles and sizes, is one of the greatest improvements in knitting machines for a long time.

For particulars address

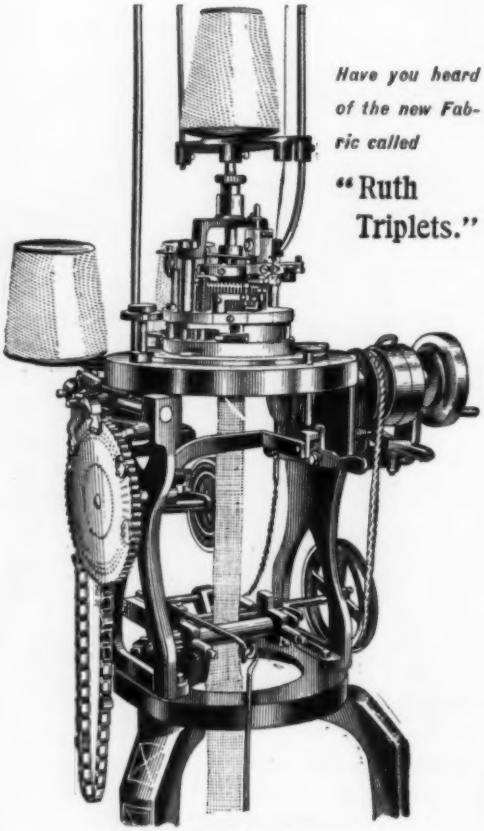
MAYO KNITTING MACHINE & NEEDLE CO., FRANKLIN FALLS, N. H.

Philadelphia Office: Knickerbocker Building, Cor. 6th and Arch Sts.

We manufacture all kinds of Latch Needles of superior quality.

START 1904 RIGHT

"Once Used, Never Without,"
Applies to all RUTH Products



Have you heard of the new Fabric called

"Ruth Triplets."

Install

RUTH

RIBBERS
in your mill.

Every machine guaranteed to do all for which it is constructed. Why hesitate?

Use the

RUTH

SPECIAL
NEEDLES

WE WISH YOU A VERY HAPPY AND PROSPEROUS NEW YEAR.

PATENTEES AND MANUFACTURERS OF

Ruth Ribber, Ruth Sleever, Ruth Splicer, Ruth Automatic Stop Motion, Ruth Lace Device, Ruth Friction Pulley, Ruth Belt Shift, Ruth Needles.

Ruth Automatic Knitting Machine Co

Box T-W,

YORK, PA., U. S. A.

Get our prices before placing your order for ANY PART of ANY MAKE of knitting machines.

Friedberger Mfg. Co.

Having large stock of

COTTON YARNS

in their warehouses are in a position
to make and

GUARANTEE

DELIVERY AS DESIRED ON ALL

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orders placed with them.

P. O. Address, Logan Station.

Mills, Germantown, Phila.

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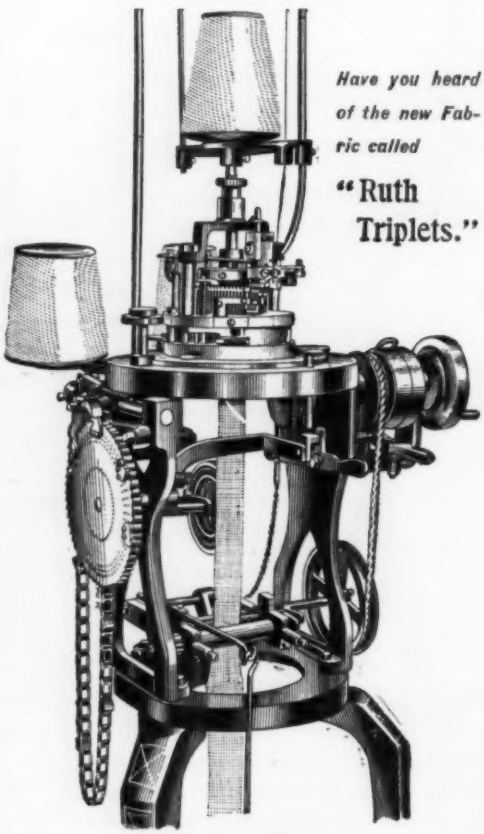
Applies to all RUTH Products



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Every machine guaranteed to do all for which it is constructed. Why hesitate?

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Having large stock of

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P. O. Address, Logan Station.

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NYE & TREDICK COMPANY,

MANUFACTURERS OF

Circular Rib Knitting Machinery,

UNDERWEAR MACHINERY,

For Ladies' Vests, Combination Suits, Corset Covers, etc., Men's Underwear, Sweaters, etc.

New Improved Sleeve Machines, Machines for Rib Hosiery, Rib Tops and Cuffs.

LATEST IMPROVEMENTS ON ALL MACHINES.

MECHANICAL STOP MOTIONS

For Circular Rib Knitting Machines.

OFFICE AND SHOW ROOMS:

606 ARCH STREET, PHILADELPHIA.

The "INVINCIBLE"

A machine of the highest grade.

Practical and Economical in operation.

A Big Producer.

Gauge of machine changed by simple changing cylinders.

The Invincible METHOD OF TRANSFERRING RIBBED TOPS is quicker and more positive than others.

No experience required to transfer ribbed tops by this method.

YARN CHANGED automatically without revolving bobbins.

Write for Catalogue.

Full Automatic Knitting Machine

For all kinds and gauges of

SEAMLESS HOSIERY

PAWTUCKET, R.I. U. S. A. **E. JENCKES MFG. CO.** BRANCH OFFICE, Room 370, Bourse Bld'g, PHILADA, PA.

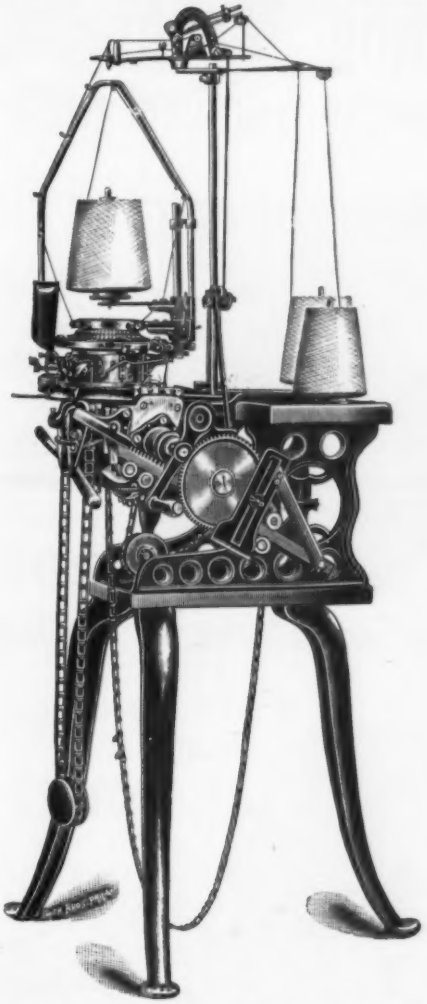
R. M. OATES, Selling Agt., HENDERSONVILLE, N. C.

EXCELSIOR

Knitting Machine Mfg. Co.

BUILDERS OF

KNITTING MACHINERY



Two-Feed 7-8 Automatic for Ladies String Work, also Black Legs with White Feet.

Regular 7-8 Automatic for all classes of Cotton Hose. Special 3-4 Automatic for Wool.

Allentown, Pa., U. S. A.

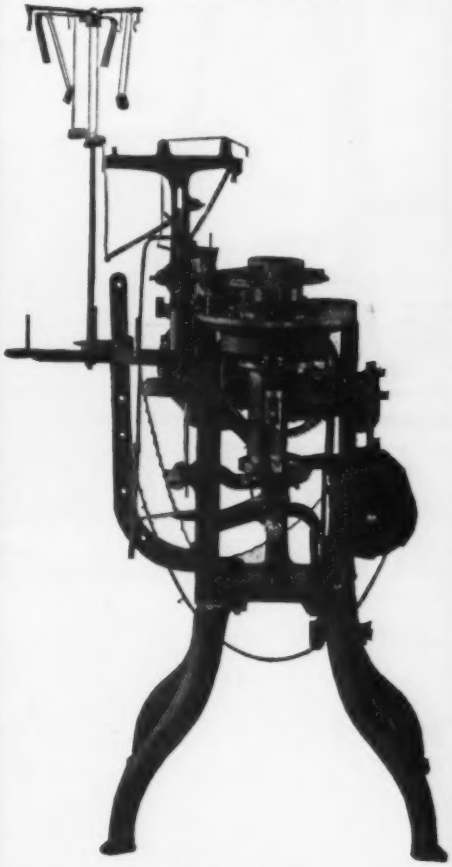
The

"Hemphill"

Full Automatic Hosiery Knitter.

Simple and Durable.
Self Cleaning.
Easily Adjusted.

The Cylinder Cannot Tilt.
Bad Jams Cannot Occur.



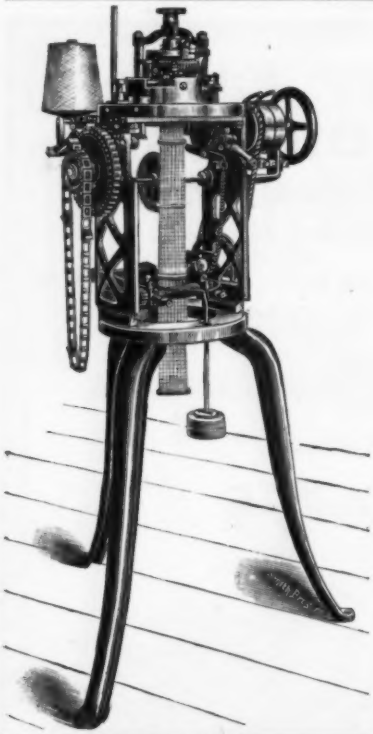
SIDE VIEW.

We have a machine in operation at our two offices where we are pleased to demonstrate the wonderful merits of this machine.

HEMPHILL MACHINE CO.,

Pawtucket, R. I.

Philadelphia Agent, E. A. NEWTON, 243 Race Street.



H. Brinton & Co.

213-215 Race Street, Philadelphia, Pa.

BUILDERS OF

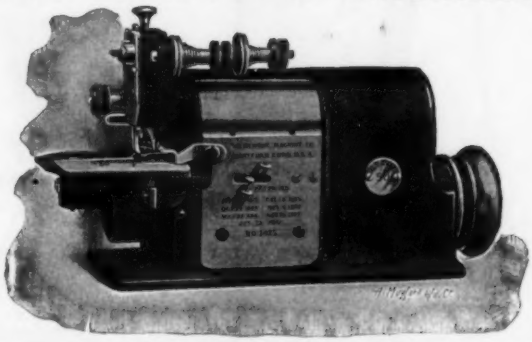
Knitting Machinery

For HOSIERY and UNDERWEAR.

Complete Estimates Furnished. Send for Particulars.

The cut shows our **Improved Automatic Ribber** with Welt and Slack Course for Half Hose, Tops and Ribbed Legs.

THE CHEAPEST and BEST METHOD
OF
FINISHING RIBBED KNIT GOODS
IS BY THE USE OF
OUR HIGH SPEED MACHINES.



BLANKETS, SKIRTS or COTTON GOODS,
requiring a useful and Ornamental Finish, should be finished by some of our various machines adapted for special purposes and finishes.
Send for Catalogue and Samples, stating the kind of goods to be finished.

THE MERROW MACHINE CO.,
346 Broadway, New York. HARTFORD, CONN. Bourse Bldg., Phila.

CIRCULAR KNITTING MACHINES

Either plain or full automatic, with stop motions complete, for

Ribbed Underwear, Sweaters, Cardigans, Cuffs and Anklets.

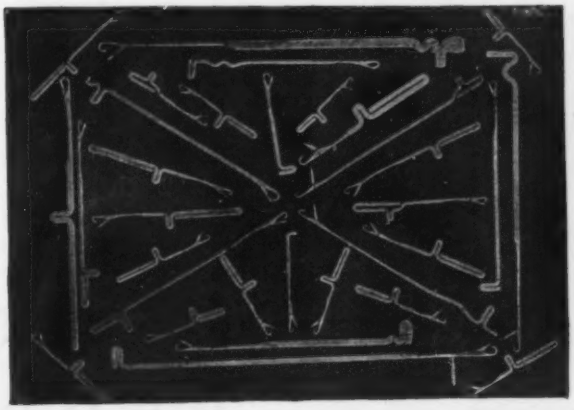
The Leighton Circular Machines are the only ones which **Rack** or **Shog** the needles for fancy borders; also built for automatic striping; and with from 4 to 16 feeds for underwear.

Also Builders of ABEL WINDERS, SEAMERS and LOOPERS.

LEIGHTON MACHINE CO.,
Manchester, N. H.

Latch Needles

For all Knitting Machines.



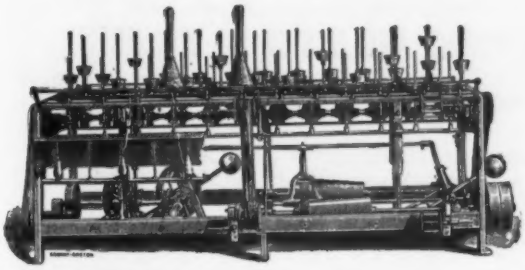
Our Superior or Sunken Rivet Head Needles

Will save you money every day in the year.

Dodge Needle Co., Manchester, N.H.

We now build, with or without differential motion, for winding on Bobbins from Skein or Cop,

THE ABEL WINDERS



ALSO THE

Abel Seamers and Loopers

IN CONNECTION WITH OUR LINE OF

AUTOMATIC RIB KNITTING MACHINERY.

LEIGHTON MACHINE CO., Manchester, N. H.

JAMES TAYLOR,

835 Arch Street, - - - Philadelphia, Penn.

KNITTING MACHINERY

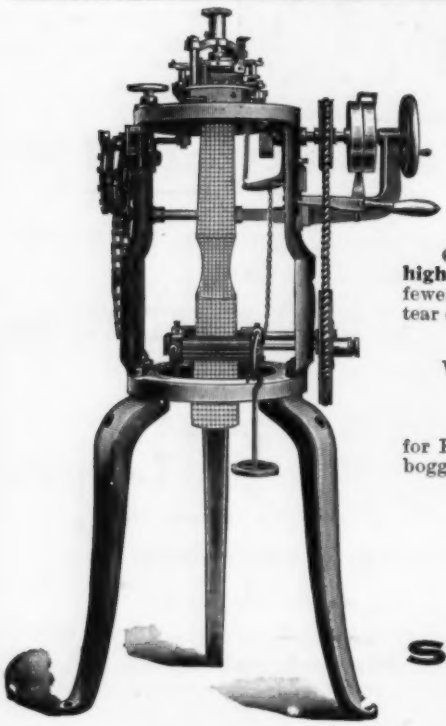
OF ALL KINDS. NEW AND SECOND HAND.

A RARE OPPORTUNITY TO BUY.

31 Mayo Acme 3¾—176 needles.
20 Mayo Acme 3¾—136 needles.
50 New Victors, various sizes.
28 Beattie & Hepworth loopers.
3 Cornely embroidery machines.
10 Hosiery presses (Lever).
3 Screw presses.
1 Hollow plate press.
40 Lamb and Grosser flat knitters.
150 Ribbed underwear machines, various sizes and makes.
1 Speed lathe.
1 Sensitive drill.
60 Brinton & Co. 3¾ aut. knitters, sizes.
27 Standard A machines, 3¾ in., 160 needles.
56 Union Special machines.
100 Brooks welters.
98 Brinton & Co. and other make hosiery ribbers.
Ribbed shirt machine cylinders and dials, all sizes, cuts and makes.
1 Payne winder, 40 spindle.
50 National spring needle machines.
1 Sandusky mangle, 60 inch.
1 250 doz. Cyclone hosiery dryer.
1 20 inch belt driven Troy extractor.
4 Old style Jackson winders.
3 40 spindle upright cop winders.
1 No. 35 Merrow small shell machine.
2 Industrial over-seamers.
1 Complete plant N. & T. underwear machines.
1 Plant of Leighton sweater machines.
1 Allen skein winder.

WRITE FOR COMPLETE LIST.

We are always in the market to buy good second-hand Knitting and Finishing Machinery.



High Speed Rib Knitting Machinery.

Our latest model machinery has been designed to run at **very high speed**, giving large production. This is accomplished with fewer seconds, less breakage of needles, less jar and wear and tear on machines than has been customary at lower speeds.

We also make Special

STRIPING AND DESIGNING MACHINES

for Fancy Golf Stockings, Bathing Suits, Sweaters, Toques, Toboggan Caps, Skirts, etc.

Our Machinery gives large production at low cost and enables manufacturers to meet the market always and make a profit.

STAFFORD & HOLT,

LITTLE FALLS, N. Y.

FULL-FASHIONED HOSIERY MACHINERY

.. BUILT BY ..

Chemnitzer Wirkwaaren-Maschinenfabrik

(Formerly SCHUBERT & SALZER)

CHEMNITZ, GERMANY.

HALF-HOSE LEGGER OF 24 SECTIONS.

All classes of flat work machines for full-fashioned hosiery in all gauges, from 21, 24, 27 up to 51 guage, from 12-24 sections, also machines for full-fashioned shirts and pants in all guages from 6-10 sections, with narrowing and widening.

Representative: OTTO WALTHER, 591 Bourse, PHILADELPHIA

Universal Cutter Co.

4567-4569 SCOTT AVE., ST. LOUIS, MO.

FRED BAUMANN, Jr., Eastern Mgr., 467 Broadway, NEW YORK.

CUTTING MACHINES

Made to be operated by direct current, 110 or 220 volts.

What electric current have you?

UNIVERSAL CUTTER will do the work BETTER and cut a GREATER quantity of Knit Underwear, or Fleeced Materials, than any other Cutting Machine on the market. : : : :

Made in 3 sizes Circular Knives:—Gem, 3 1-4 inch Knife, weight 15 lbs.; Prima, 4 inch Knife, weight 24 lbs.; Giant, 5 1-2 inch Knife, weight 27 lbs. Two sizes straight or Reciprocating Knives. Send us sample of material you desire to cut, stating thickness you want to cut at one time, and we will advise you as to which size is best adapted to your wants.

The "New" Victor Knitting Machine

A Full Automatic Seamless Machine, thoroughly interchangable in all its parts.

More simply constructed than any machine on the market.

Full Automatic Two-Color Striping Machine

Full Automatic Combination Lace and Stripe Machine

American Knitting Machine Co.,

Office and Works:

Oxford Street, between Mascher and Hancock,

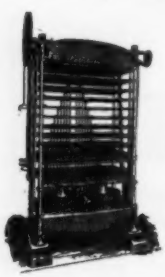
PHILADELPHIA, PA.

The CRAWFORD

HOLLOW STEAM

PLATE PRESS

For Knit or Woolen Goods.



The most reliable machine of the kind on the market.

PRESS PAPERS and FENDERS.

SPENCE & RIDEOUT,

Successors to
J. J. CRAWFORD & SON,

NASHUA, N. H.

Established 1868.

CHARLES COOPER,

BENNINGTON, VERMONT.

MANUFACTURER OF

Knitting Machinery

Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder. **Spring Needle Cylinder Rib-Top Machines,** for making Cuffs, Drawer Bottoms and Shirt Borders. **Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, etc.**

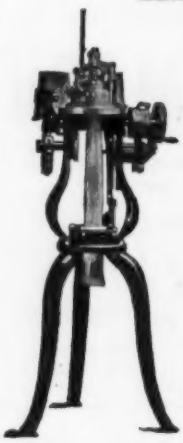
COLLARETTE ATTACHMENT

Branch Shop, Amsterdam, N. Y.
Philadelphia Office, "The Bourse, Room 435."
European Office, 15 Newarke St., Leicester, England.

C. J. SIBBALD, General Representative, 757 River St., Troy, N. Y. Telephone No. 547-M.
G. E. PARKER, Representative, Philadelphia, Pa.

Pepper Machine Works

Lakeport, N. H.



Successors to Pepper Manufacturing Co.

Manufacturers of

Knitting Machinery,

INCLUDING

Pepper's Flat Ribbed Cuff Machines,

Automatic Welt and Loose Course Machines for Stock Tops. New Circular Stripers with Welt, Loose Course and Striping (Automatic), for Short Cuffs, Sock Tops, Hose Legs, Wristers, etc.

Golf and Bicycle Stocking Machines,

ALL KINDS OF

CIRCULAR RIBBED MACHINES

For Men's Underwear, Ladies' and Misses' Hose Legs and Leggins.

Correspondence Solicited.

PAXTON & O'NEILL'S

3-4 AUTOMATIC KNITTER

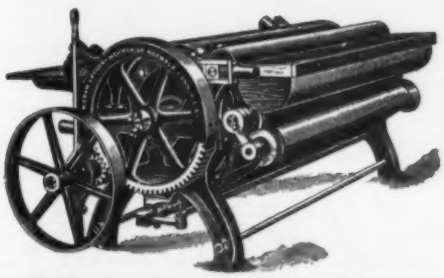
FOR ALL KINDS AND GUAGES OF SEAMLESS HOSIERY.

Has the preference wherever used over 7-8 and full automatics. Because it makes as much or more goods and better goods. Costs less for repairs. Gives less trouble to fixers. Range on Half Hose, from the coarsest to 260 needle.

Exclusive rights to BROWN'S ATTACHMENTS FOR LACE EFFECT.

Cylinders and Dials for all size Machines. **127 Bread Street, Phila.**

AUTOMATIC IRONING and PRESSING MACHINE for KNIT GOODS.



This machine irons and presses ribbed and flat underwear, giving a fine, smooth finish and most attractive appearance to the goods, not to be obtained in any other way. It does not break buttons. Inexpensive and easy to operate, and has large capacity. Knitting mills using them are greatly pleased with results. This method of finishing is sure to come into universal use. Send for further particulars to

J. W. CRAW LAUNDRY MACHINERY CO.,
SOUTH NORWALK, CONN.

HEPWORTH & CO.'S

Patent Single-Stitch

LOOPING MACHINE.

Needle working from the inside, avoiding the breaking of needles and points and picking up the metal.

Single and Double Stitch, or Both Combined.

JOHN W. HEPWORTH & CO.,
N. W. Cor. Lehigh Ave. and Mascher Street,
PHILADELPHIA.

Drying Forms.

BOARDS FOR FAST BLACK DYERS.

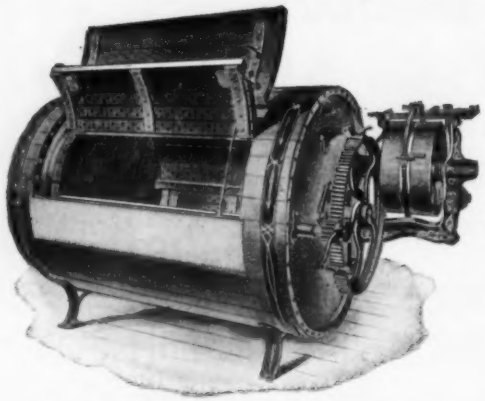
HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

JOS T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA

Hosiery Boards.

Knit Goods Dyeing, Bleaching, Finishing Machinery



THIS USEFUL MACHINE MAY BE USED FOR WASHING, SCOURING, FULLING OR DYEING.

OF THE

"EMPIRE" MAKE

is simple, does the work and is less expensive than some. Write for quotations when in need.

¶ Don't think because we build laundry machinery that we don't understand textile requirements. We sell lots of machines to such mills and get repeat orders.

¶ We also build Washers, Fulling Mills, Scouring Machines, Hydro-Extractors and Machines for Pressing and Ironing Knit Goods without injury to the buttons.

EMPIRE LAUNDRY MACHINERY CO., BOSTON, MASS.

WOLFGANG RICHTER,

Importer and Builder of

Full Fashioned Knitting Machinery

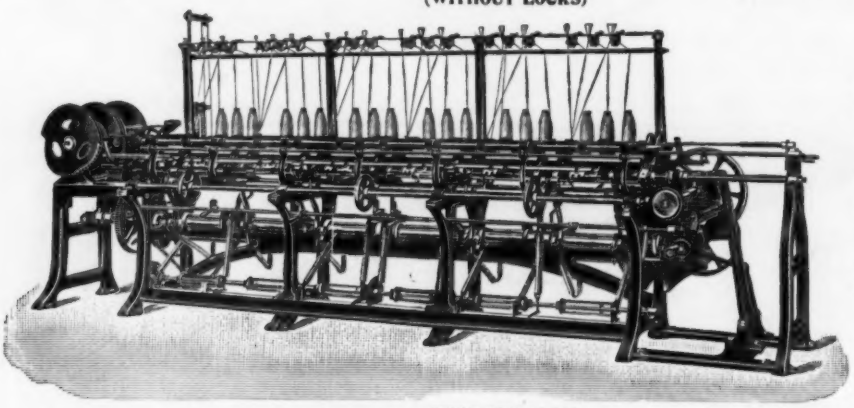
N. E. Corner Third and Green Streets,
PHILADELPHIA, PA.

WALTER SCHOEBEL, 110 Penn St., BROOKLYN, N.Y.

SOLE AGENT FOR THE UNITED STATES FOR

NEW The "Record Narrowing" Flat Knitting Machine NEW

(WITHOUT LOCKS)



The "Record" excludes any breaking of needles.

The "Record" runs very lightly and with the greatest quietness.

The "Record" narrows after a new method.

HIGH PRODUCTION.

BUILT SOLELY BY

IRMSCHER & CO., Dresdener Knitting Machine Factory, DRESDEN, SAXONY.

This new invention, working after an entirely new method, is a combination of the COTTON and FLAT Knitting Machine with Automatic Narrowing Apparatus, for the production of full fashioned goods, seamless legs of ladies' hose, plain, seamless drawers, Shaker and cardigan sleeves, etc.

"THE RECORD" is also built without narrowing attachment for making 2 and 2 ladies' vests, shaker bodies, sweaters in 1 and 1 half and full cardigan, rib tops, etc.

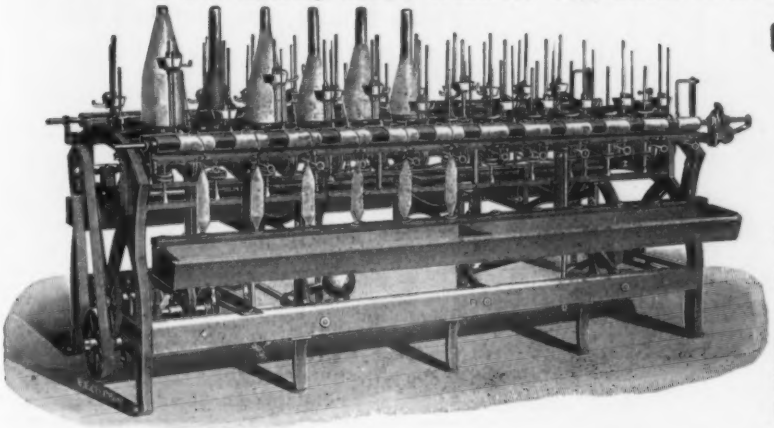
All goods produced on the "Record" have more elasticity and are of finer manufacture than any other machine of its kind.

SPECIAL HAND AND POWER MACHINERY FOR FANCY GLOVES, SWEATERS, GOLF HOSE, LADIES' BLOUSES, ETC.

GEO. W. PAYNE, Prest. J. MILTON PAYNE, Treas. CLINTON F. PAYNE, Sec'y.

OVER 1,650 PAYNE WINDERS IN USE

For Hosiery Mfrs., Wind for Cop, Skein or Bobbin.



GEO. W. PAYNE CO.,

[Est. 1865. Inc. 1903.]

Builders of the

Improved

Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers, for doubling 2, 3, or more ends into one,

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

OFFICE, 102 BROAD STREET
Pawtucket, R. I.

WILLIAM R. DILLMORE, President. JOHN C. EGLY, Secretary and Treasurer.

KEYSTONE FULL AUTOMATIC KNITTER.

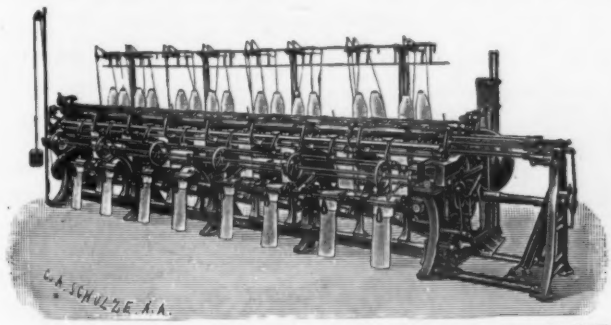
The simplest machine of the kind ever built. A small bench machine running with a 3-4 inch belt. Can be used with two cylinders, or transfer points if desired. Positive thread splice. All parts interchangeable. Call and see it in operation in our offices.

MANUFACTURERS OF LATCH NEEDLES

We can furnish you needles for any make of machine that you use. We number among our customers, the best known mills in this country. We will be pleased to estimate on any line.

KEYSTONE KNITTING MACHINE MFG. CO., 2600 North Sixth St,, Philadelphia, Pa.

SEYFERT & DONNER, CHEMNITZ, GERMANY.



BUILDERS OF ALL KINDS OF

Flat Knitting Machines

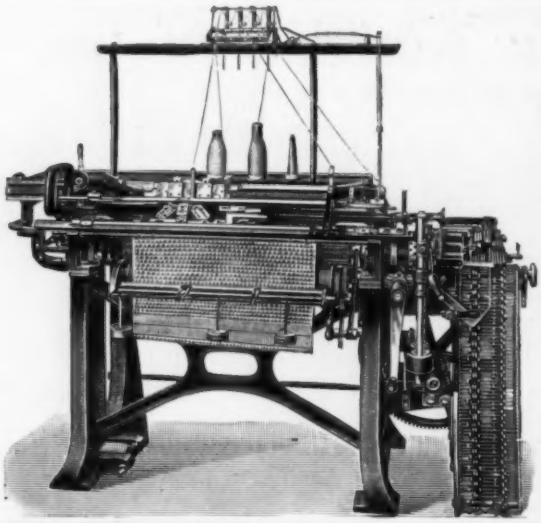
(LATCH NEEDLES)

This cut shows the **AUTOMATIC NARROWING MACHINE**, eight at once, for the manufacture of plain, seamless legs of Ladies' hose in endless bands with dividing thread. These legs, footed on the Circular machine, give the most perfect and cheapest full fashioned seamless hose that ever existed on the market.

N.B.—Narrowing Machines are built in various types for the manufacture of all kinds of underwear, garments, etc

FULL AUTOMATIC POWER KNITTING MACHINES—Independent Heads. Patentees and sole makers of the "**TEUTONIA**," best and quickest hand-knitting machine for hose and half hose. Griswold heel, narrowed toe.

Sole Agent for the United States, JULIUS MULLER, 132 Melrose Street, Brooklyn, N.Y.



Full Automatic NOPPEN & JACQUARD MACHINE

For High-Grade Sweaters, Jerseys, Etc. in latest plain and colored patterns.

Most durable, simplest construction! Easy to operate and adjust! Recognized as the Best in the market. One operator attends to 3 of these machines! Only reliable machine for above articles.

HIGH SPEED! LARGE PRODUCTION!
IN USE EVERYWHERE!

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Ask for samples and full particulars. State gauge and size you need.

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MAKER OF

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OF EVERY VARIETY.

For Ladies', Gents', and Children's Goods.
LATEST STYLES.
BEST WORKMANSHIP.

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The best equipped shop in the United States for the Manufacture of

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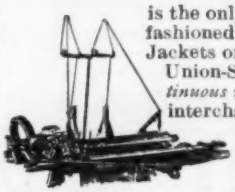
The Grosser PATENT FLAT KNITTING MACHINE



is the only reliable machine for full-fashioned Sweaters, Cardigan or Golf Jackets or Vests, Gloves, Underwear, Union-Suits, etc., that gives *continuous* satisfaction. All parts are interchangeable on our new style. The only automatic Machine for Jacquard Honey-Comb or Seamless Shaker Sweaters. We have the only first class High Speed 2 thread Lockstitch Overseamer for selvedged Knitgoods, that will sew in Sleeves or hem in double Bottoms on Sweaters without puckering. *ARTHUR MUELLER, 780 Madison St, Brooklyn, N. Y. Telephone 665a Bushwick*

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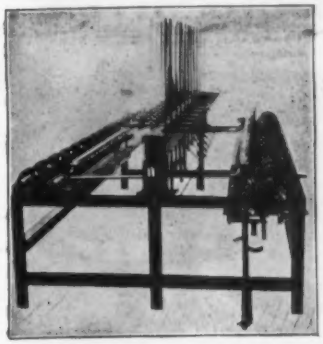
STEAM PRESSES, HOSIERY-FINISHING AND DYE HOUSE MACHINERY.

F. F. Pownall IRON WORKS,
JAMESBURG, N.J.

Hosiery and Laundry Dryers.

Complete Dye Plants Erected.



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Lindley's New Automatic Power Glove Fingering Machine, Cardigan Jacket and Circular Knitting Machines for Shirts and Hosiery.

Germantown Skein Winder and Links for Double Ribs

Cylinders and Dials of all kinds made and hardened. Special Machine and Jobbing Work promptly attended to. Also equipped to do general repairing of Platt's Cotton Spinning Machinery. Correspondence solicited.

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For Seamless Hosiery.

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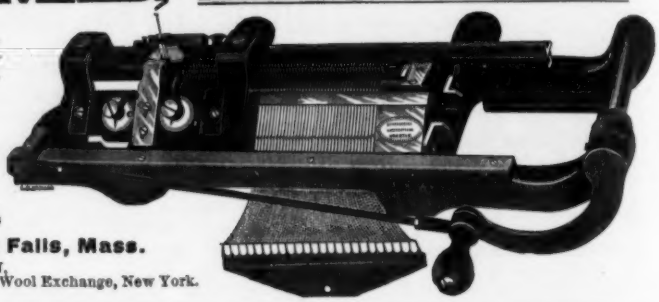

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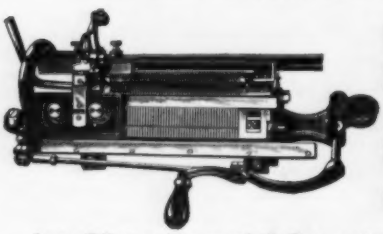

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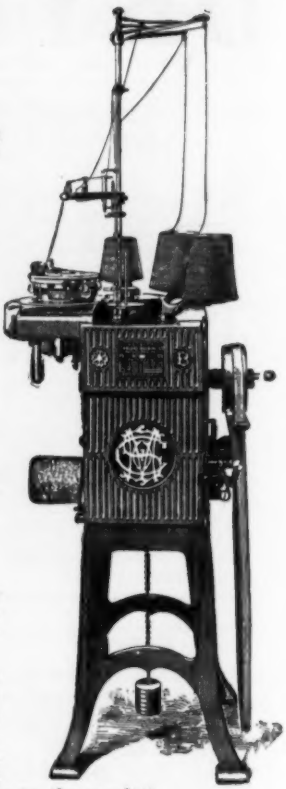

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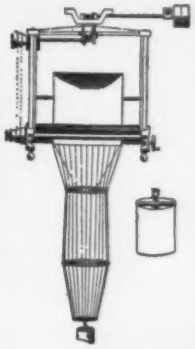

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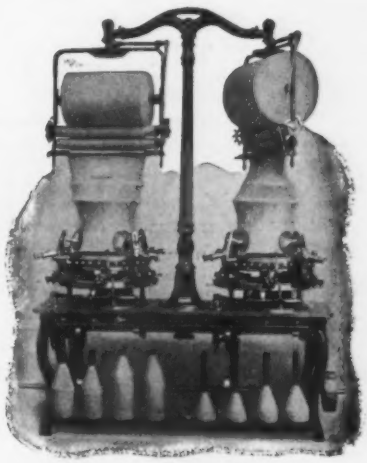

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Knitters, Winders, Burrs, Attachments

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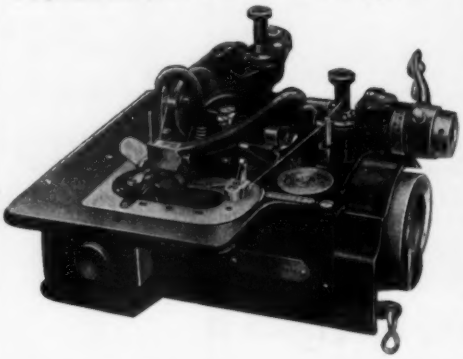
"OVERLOCK" Machine.

(TRADE MARK.) (Pat. April 5, 1892.)

Patent twice upheld by the U. S. Court of Appeals.

For
Trimming, Seaming (or Hemming or Overedging) and Covering Raw Edges of Knit Underwear and Hosiery
in
ONE OPERATION
and for making
"Overlock" Corded Edge on Lace Curtains, Silks, Ribbons, etc.



WARNING!

Manufacturers and dealers are warned that not only is the "Overlock" Machine fully protected by patents, particularly our four patents of April 5, 1892; one of May 26, 1896 and one of August 11, 1903, but the edging products are also protected by patents of March 10, 1896, Dec. 26, 1899 and August 11, 1903.

Trade Mark Registered

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TEMPORARILY AT
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where we were located for thirty-five years.

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LACINGS FOR OVERSHIRTS and UNDERWEAR.

Tipped and Tasseled.

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Time of idle hands is money.

Spoiled product is money lost.

In buying Stephenson Belt Dressing you are insured against further shut-downs to take up slack belts.

Its many good qualities can only be appreciated by its use.

May we have your next **trial** order, or shall we send you you a free sample by mail?

STEPHENSON MFG. CO., - Albany, N. Y.

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Repairs to Hosiery and Underwear Machines, Cylinders and Dials of every description.

FINE MACHINE WORK.

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We HARDEN all CYLINDERS and DIALS large and small.

BONNAZ MACHINES

FOR

HOSIERY EMBROIDERY

Of All Descriptions.

Automatic or Hand Operations.

PARTS AND SUPPLIES.

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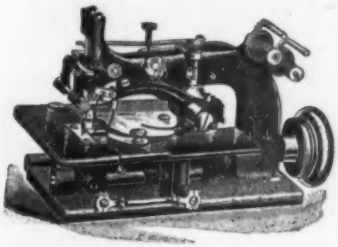
THE

Champion Rib Knitting Machines

For HOSIERY AND UNDERWEAR



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Estimates Cheerfully Given.

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KNITTING MACHINE.

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A Specialty of Hardened Bladed Burr Wheels with Self-Oiling Brackets.

The Davidson Fan Wheel

Is better built in every way, makes less noise, will do more work and consume less power than any other. They are built in a variety of styles. Our catalogue No. 50A is yours on request and tells a lot about them.

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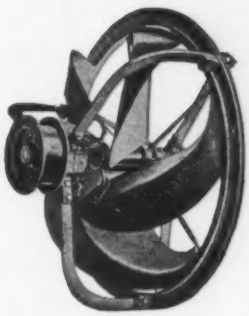
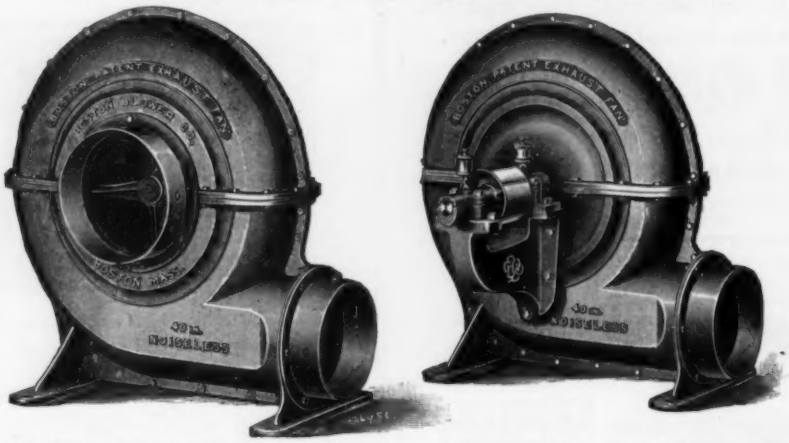


Boston Wool Exhausters, with Removable Tops.

As used in Connection with Pneumatic Conveyor System for Handling Wool, Cotton, Rags, Excelsior, Jute, etc.



Inlet Side of Right-hand Wool Exhauster. **Pulley Side of Left-hand Wool Exhauster.**

This machine is similar in design to the regular Boston Patent Exhaust Fan, but is fitted with a special wheel for handling fibrous materials, and the top is removable.

This latter feature is especially desirable when handling wet or greasy materials or in handling anything, in fact, which would leave a deposit on the inside of fan, as the entire top may readily be removed for inspection or cleaning without disconnecting either pipe or belt connections.

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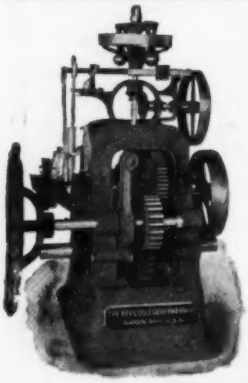

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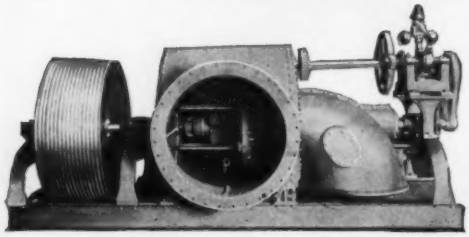

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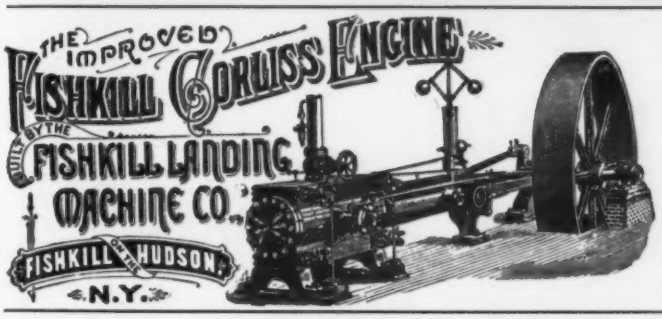
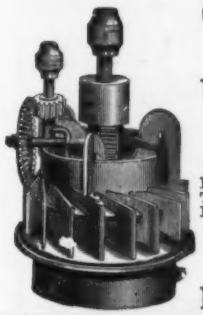


Most Efficient and Economical Power in the world For Textile Mills.

It has NO EQUAL for Close Regulation and Noiseless Operation. Send for Catalogue.



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These wheels are specially designed and adapted to **TEXTILE MILLS**

The records of the Risdon Wheel are not equaled by the records of any other wheel. Average of results of tests in Holyoke Flume: Full Gate, .8694; Seven-eight, .8472; Three-quarter, 8014; Five-eighth, .7601.

RISDON CELEBRTAED TURBINES. ALCOTT HIGH DUTY TURBINE. Unequalled Efficiency. Easy Working Gate. Greatest Power from a Limited Quantity of Water at Smallest Cost.

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Boston Office, 176 Federal Street.

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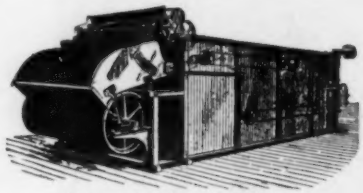
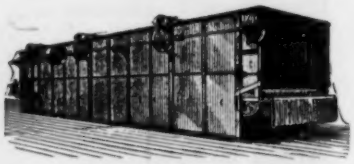


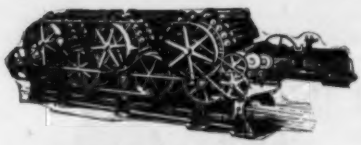
Automatic Cotton Stock Dryer.



Automatic Yarn Dryer.

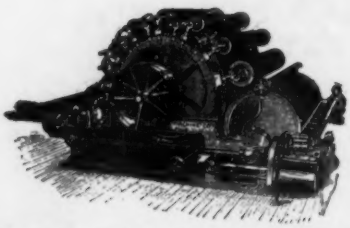
"CYCLONE" DRYERS

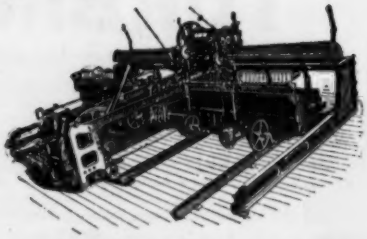
For Cotton Stock, Wool Stock, Rags,
Yarn, Cloth, Underwear, Stockings, Etc.



"PROCTOR"
Garnett Machines and Pickers

For reducing to fibre Cotton and Woolen
Waste, Cloth Clippings, Etc.





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Including Pickers, Cards, Mules, Twisters,
Warpers, Dressers, Spoolers, Etc.

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FOR

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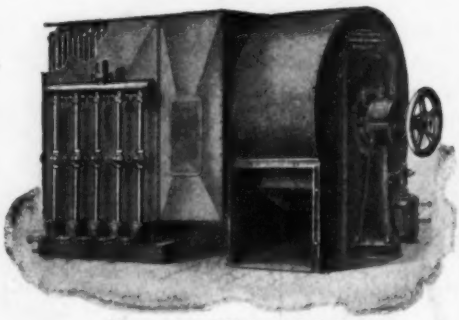
Cotton Batting and Waste Machinery.

FOR MORE COMPLETE LINE SEE PAGE 59.



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